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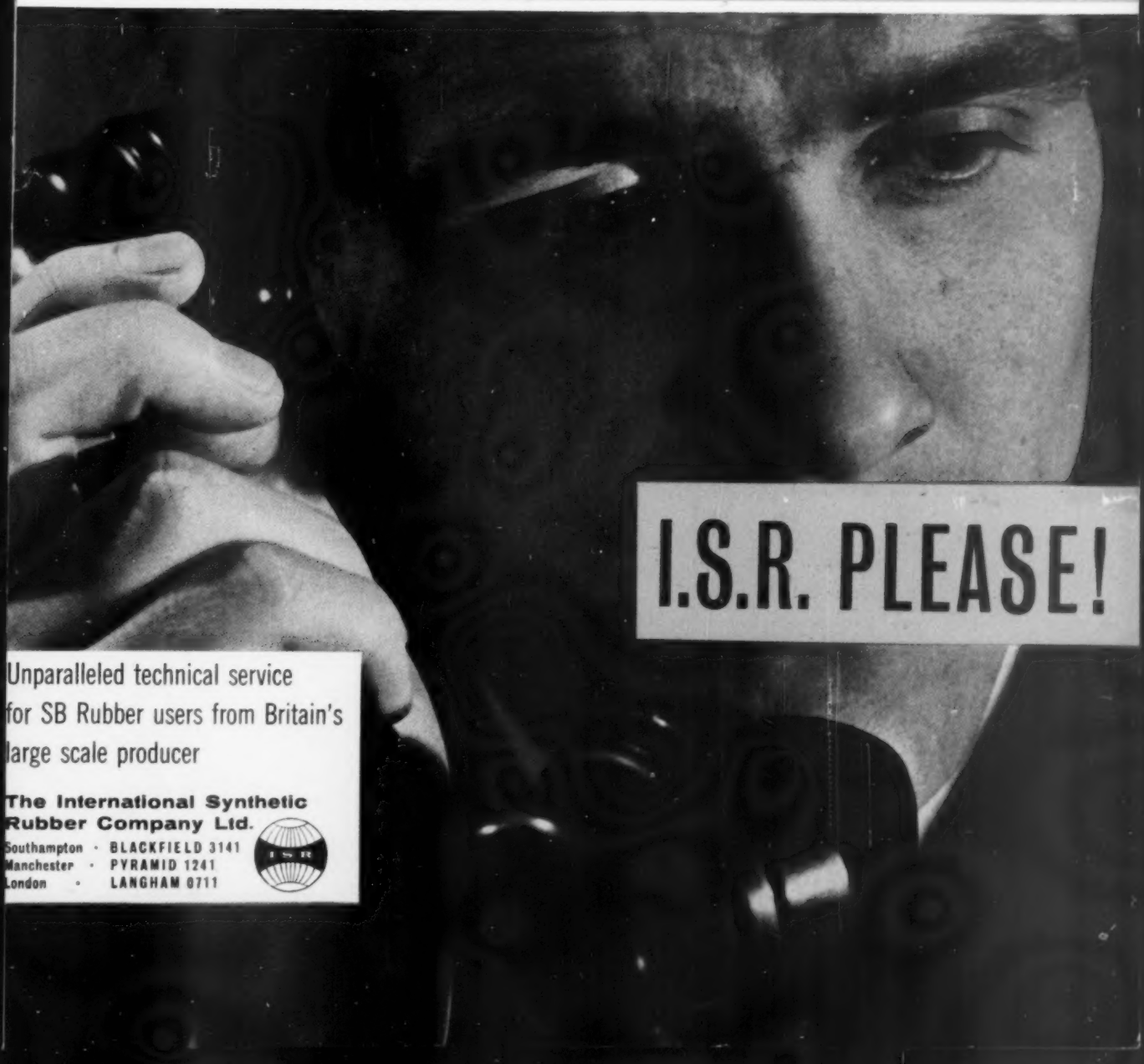
PLASTICS

One shilling — WEEKLY

VOLUME 140 NO. 3 • JANUARY 21 1961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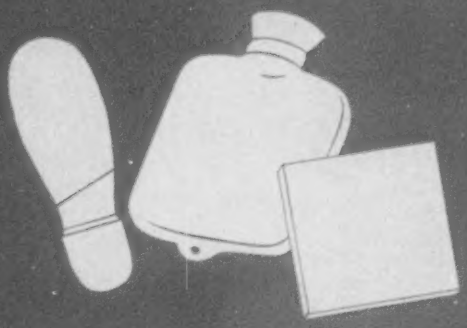

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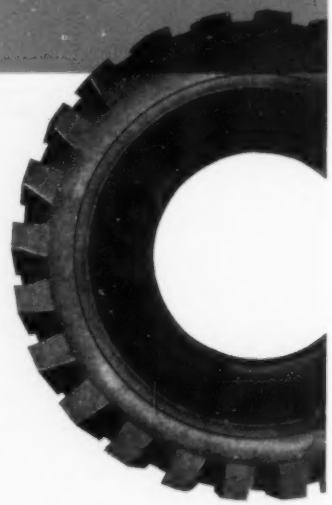

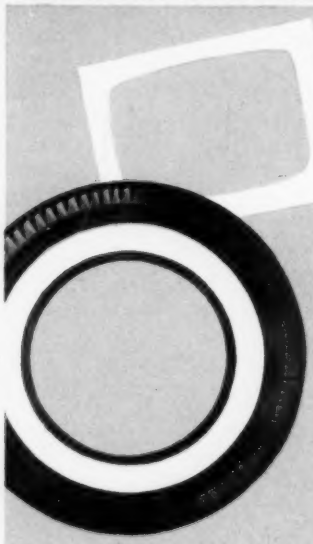

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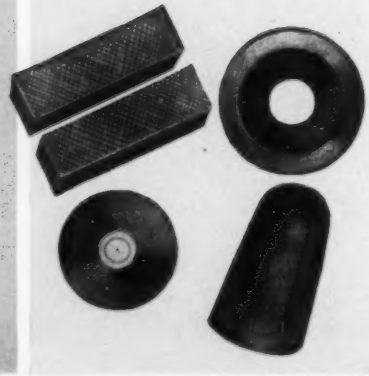

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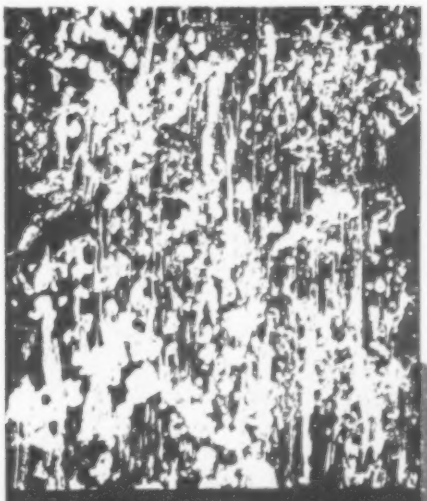

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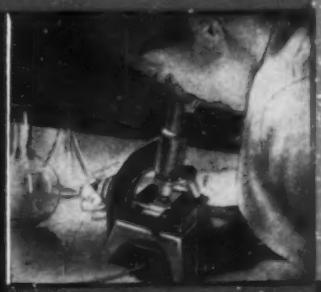

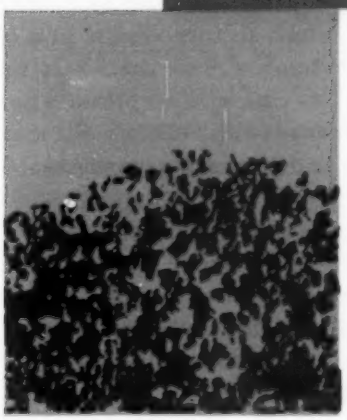

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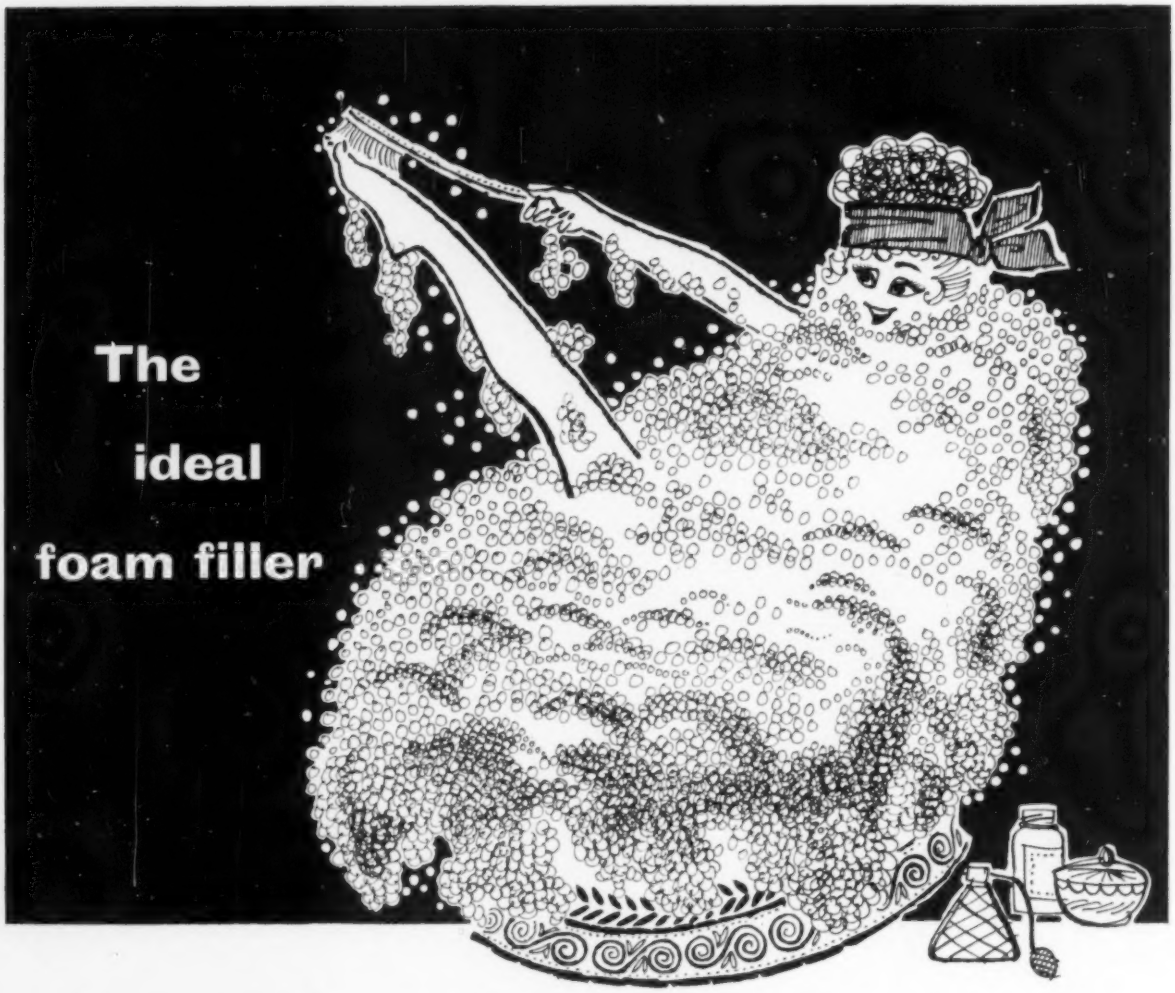

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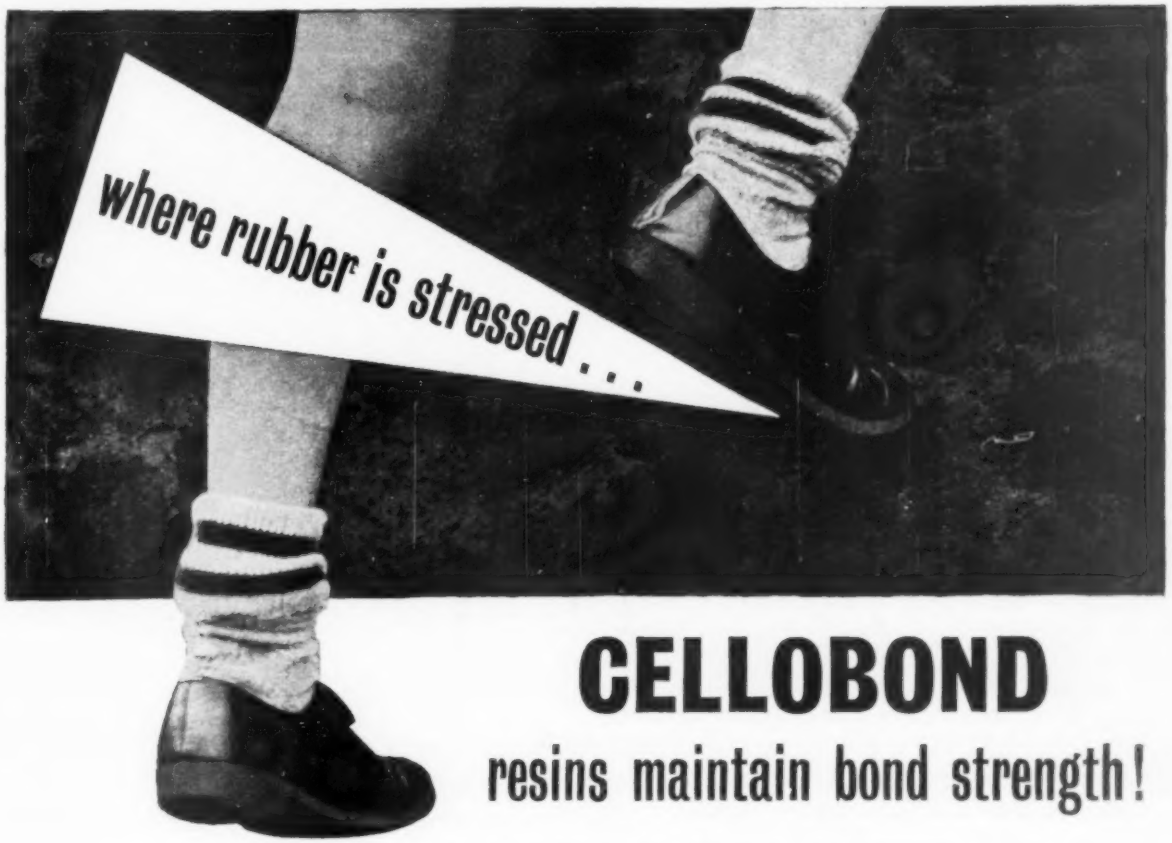

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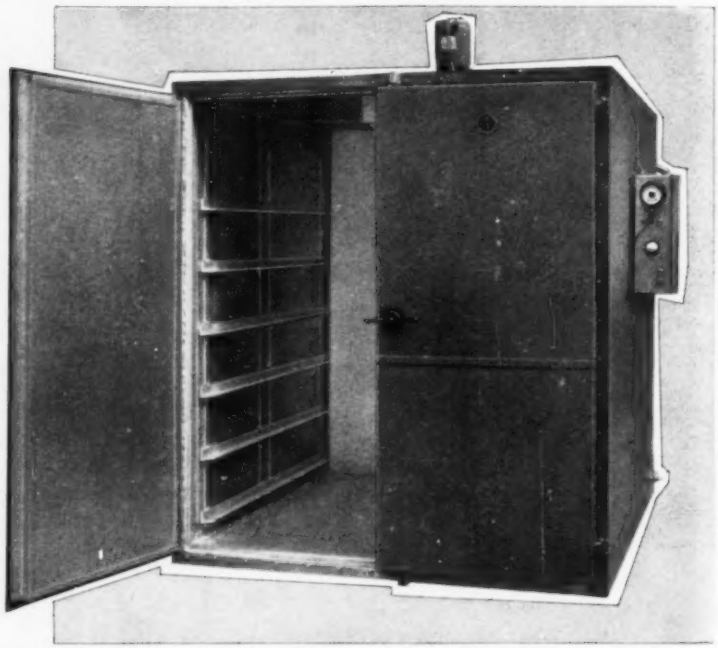

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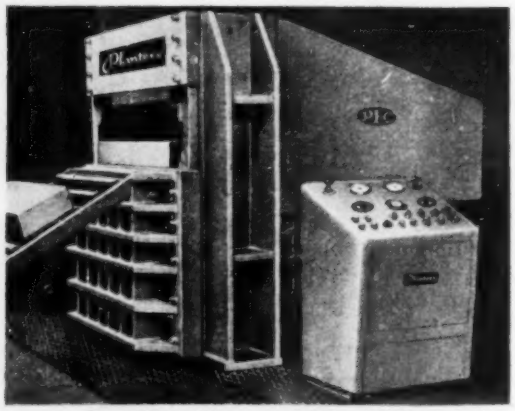

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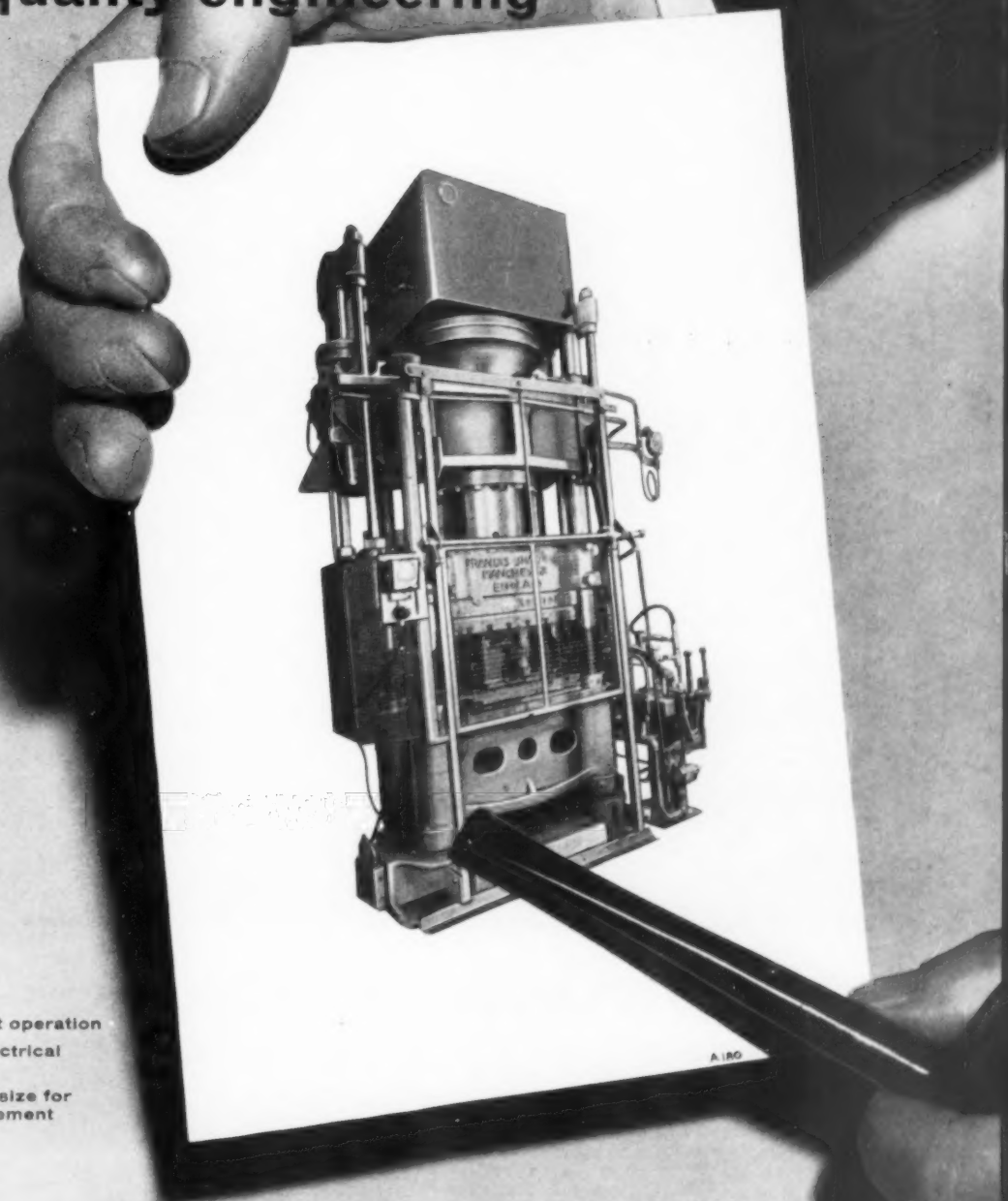

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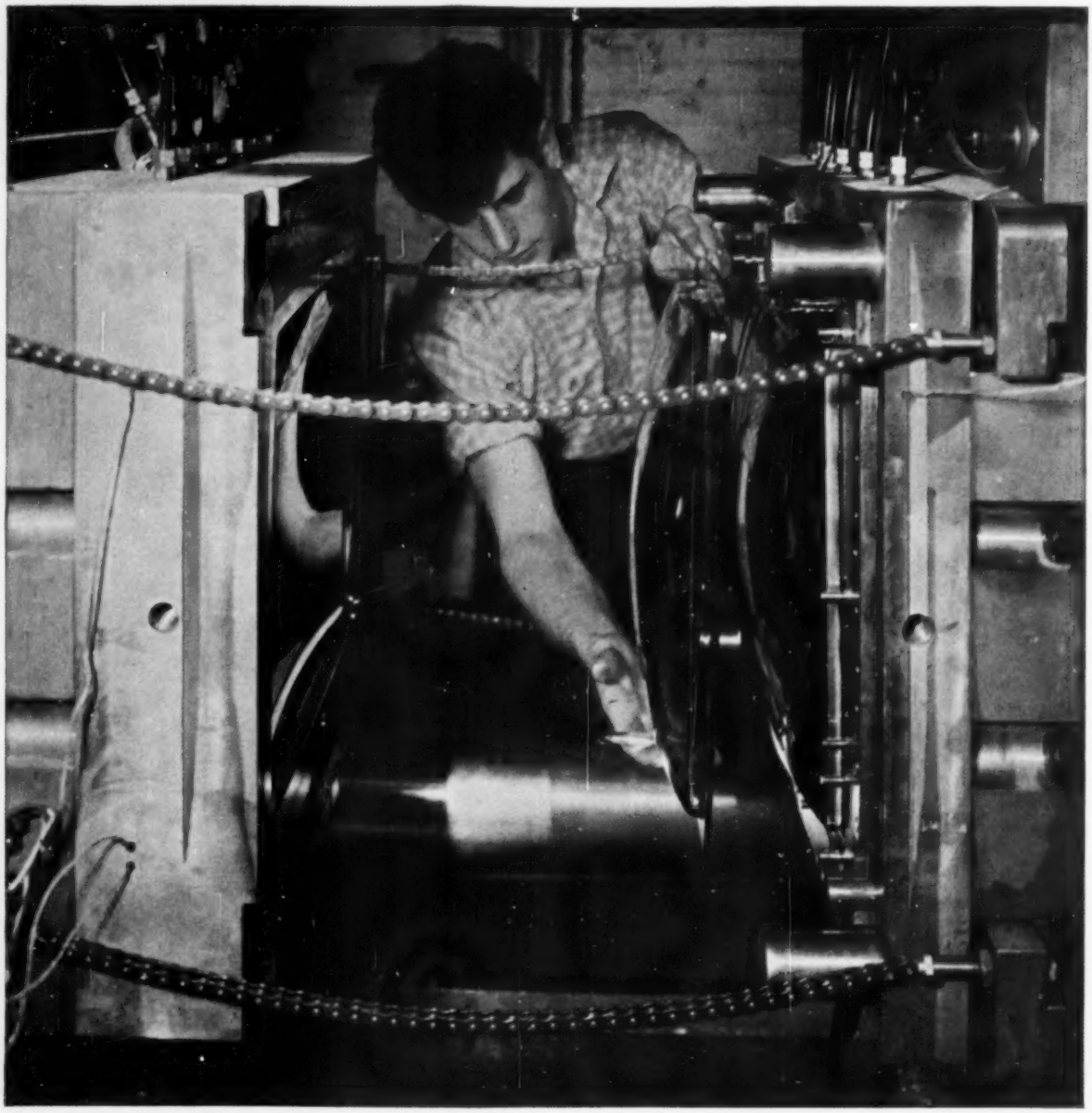

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One shilling — WEEKLY

Volume 140 *IN ITS 77th YEAR* **No. 3**

January 21 1961

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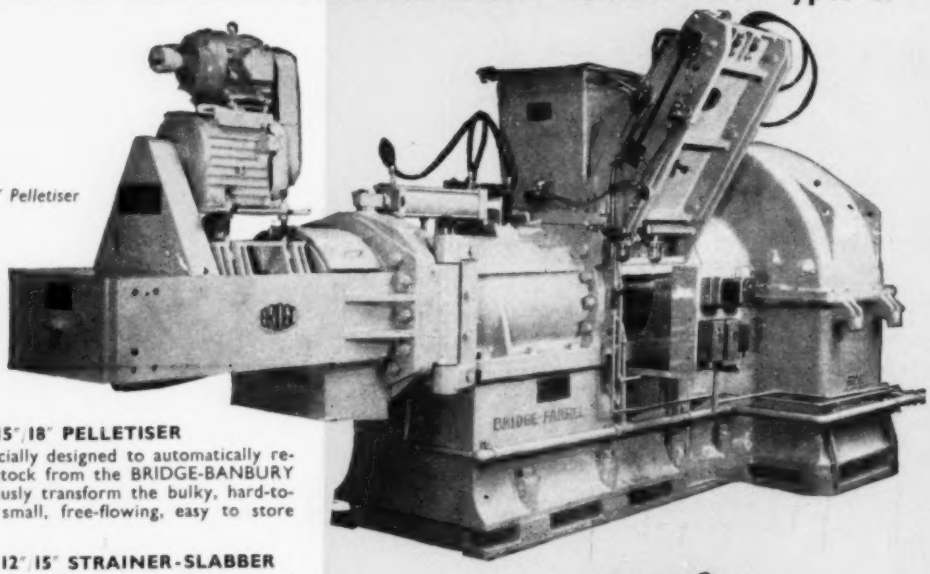

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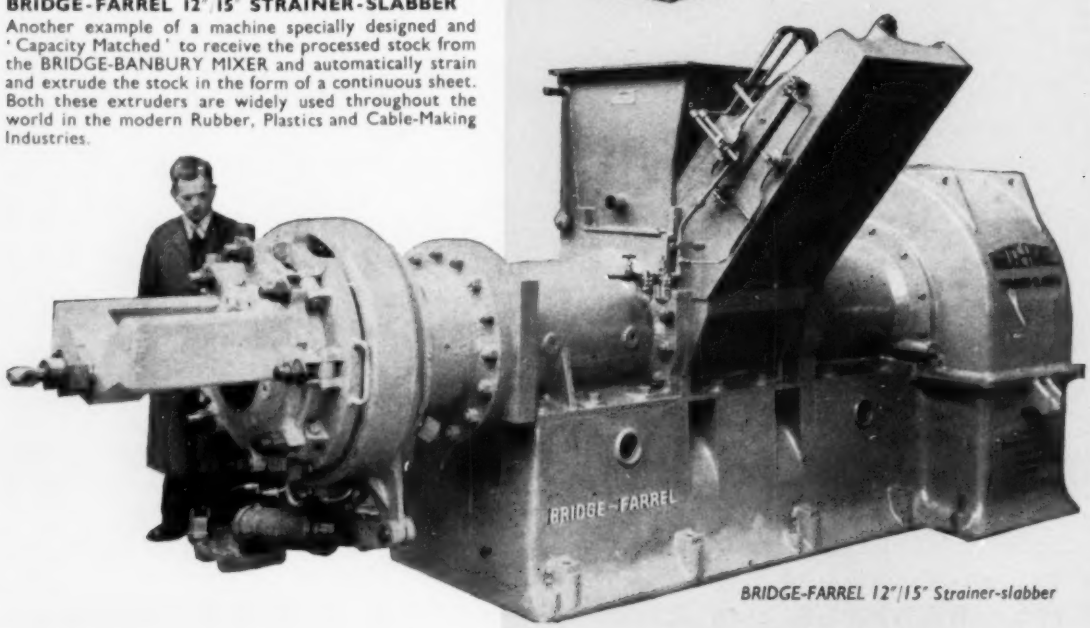

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NOTES of the WEEK

A Plastics Silver Jubilee

PLASTICS are supposed by the layman to be of recent origin: it would certainly come as a surprise to him that one plastic material is celebrating the silver jubilee of its commercial production this week. Twenty-five years ago the first Perspex polymethylmethacrylate sheet was cast at the Billingham works of Imperial Chemical Industries Ltd. Today plants at Billingham, Wilton and Darwen have a combined capacity of 17,000 tons of acrylic sheet and, as reported elsewhere in this issue, further extensions are contemplated.

The acrylics have a unique combination of properties with much to offer to the moulder and fabricator, although their comparatively high cost has held back their application in some fields. (Recently, however, the price of methyl methacrylate monomer was reduced by £8 10s. a ton (*RJIP*, December 31, 1078.) Reductions of this kind will eventually, of course, bring more products into commercial range.) The properties of toughness, dimensional stability and weather resistance, combined with transparency and 'glass surface finish,' led, it will be remembered, to acrylic sheet being used for the glazing of military aircraft during the Second World War. In fact, all I.C.I.'s wartime production was reserved for this purpose. After the war it was thought that demand would fall to a low level. This proved to be true at first, but as applications for roofing, light fittings and advertising signs were developed the sales curve shot up again and has been rising ever since.

Acrylics With Alacrity

BOTH manufacturers and the public have accepted acrylics with alacrity, and these materials have done much towards giving plastics a good name. We remember a story of the early post-war years, when 'plastic' was almost a dirty word. A man condemned all plastics as 'useless substitutes.' On being confronted with a beautiful acrylic moulding he took a long look at it and was forced to admit that it was good. But then his face cleared. 'Ah,' he said, 'but that's not plastic—that's Perspex.'

Good design has had a lot to do with the success of acrylics, and so it is fitting that the Council of Industrial Design has collaborated with I.C.I. in the preparation of an exhibition called 'Design in Perspex,' which is now being held at the Design Centre until February 11. No less than 42 of the exhibits are on the Design Index. They illustrate the variety of products that can utilize acrylics: the items displayed include an automatic telephone, a baby incubator, oculists' cubes, contact lenses, a television implosion guard, goggles, domelights and a refrigerator.

Emphasis on Exports

THE anniversary of Perspex comes at a time when, after the Chancellor of the Exchequer's recent statements, the emphasis on exports must be greater than ever. In this connexion it is good to remember that acrylics are among the few materials that cannot have a balance of payments finger levelled at them—45% of Perspex production is sold overseas. The UK's lead in these materials also extends to technical know-how in the manufacture of acrylic sheet. It is not often that this country sells technical know-how to USA, but recently I.C.I. sold its manufacturing process for acrylic sheet to the American Cyanamid Co. (*RJIP*, January 14, 48). I.C.I.'s new extensions and continuing research should ensure that the lead taken during the last 25 years is maintained.

The Art of Latex

EVER since it was discovered, rubber latex has been a fascinating subject for study for both the scientist and the technologist. The papers and books on the subject would, if laid end to end, stretch from here to Malaya. Now it looks as though additions to the literature will come from a fresh source as another type of person is beginning to show interest in latex—the artist. A recent exhibition in London, called Micrographia, consisted of photographs of sections of substances taken through electron and optical microscopes. These photographs, which included one of latex, were said to resemble 'the work of some ultra-modern artists.'

One scientist, Professor Nutting, has said that these photographs pinpoint a strange link between the creative experiences of the scientist and the artist. The argument is that the scientist at some stage has to create a model of what he is looking for and then explore nature to see if he can find it. The microscope is one of many tools he uses for exploration. But it is no good just looking, he must understand what he sees. For this reason he develops some guiding principles. Complete order in nature is dull and unlikely, while complete disorder would be chaos. Therefore he balances these opposing tendencies and uses his judgment in the balancing. Professor Nutting thinks that the artist is faced with the same problems and that, like the scientist, he enables us to see clearly what we had not perceived before, and to understand what we see. Latex, then, can have its artistic as well as its chemical structure.

So the next time you feel a little jaded, look at your rubber products and think of the echoing galleries of pictures that lie within them. It might have a stimulating effect—if you like modern art.

NEWS *Briefs*

USSR AND ITALY TALKS—SWEDISH POLYTHENE INVESTMENT—USA 1961 PLASTICS PREDICTION HULS SALES UP—KERALA PLAN—DUNLOP FIRE

●**Israel** — The two Israeli tyre manufacturers, Alliance Tire and Rubber Co. and the Samson Tire Co., are considering changes in their export policy to escape the choice of either selling at a loss or cutting production. Tyre prices abroad are declining but output in Israel is going up — and the local market is limited. Both firms are completing large expansion programmes which made a production increase possible already in 1960. Their combined output for 1960 reached 11,000 tons, compared with 8,800 tons in 1959, a rise of 26%. Exports of both companies increased by 30% and totalled $7.9m. in 1960. This year, production is expected to reach 13,000 tons.

●**Russia** — Talks on a long-term trade agreement between the Soviet Union and Italy have been held in Moscow. It is understood that any pact that is concluded would run until 1965. Last August Italy signed a trade agreement with the Soviet Union under which the Italian State concerns ENI and Finsider bought 12m. tons of Soviet oil in exchange for various goods including synthetic rubber.

●**West Germany** — Bunawerke Hüls GmbH produced 70,000 tons of synthetic rubber last year, an increase of 67% over the 1959 output of 41,722 tons. Capacity has been increased to 120,000 tons annually.

●**Canada** — Canadian General Tower Co. Ltd., Galt, Ontario, has sold the firm's vinyl and rubber flooring division to Building Products Ltd., Montreal. Manufacturing will continue in the Galt plant for the next six or eight months while the new owners prepare to manufacture in Hamilton, Ontario.

●**India** — The Kerala Government has completed arrangements for the issue of long-term loans to small-scale rubber holdings of not less than 10 acres. This credit facility will be made available to private individuals who own land suitable for rubber cultivation and also to those who come into possession of forest land auctioned by Government, according to an official announcement. The loan will be limited to 750 rupees per acre and will be disbursed in six instalments. It is estimated that 14,000 acres of private land and 6,000 acres of auctioned reserve forest land will be brought under rubber annually for the next five years under this scheme. The target fixed for this purpose is 100,000 acres till the end of the third five year plan.

●**Spain** — The Spanish Under-Secretary for Industry stated recently that Spain took seventh place among the OEEC countries in the volume of sales of chemicals. Production of some plastics materials is said to have exceeded demand.

●**South Africa** — Thermal and Plastics Industries (Pty.), of Durban has placed an order for £49,184 worth of air-conditioning equipment with the UK firm Temperature Ltd.

●**United States** — A 5 to 10% increase in production of plastics materials in the USA in 1961 is forecast by the US Society of Plastics Industry Inc. It estimates that 1961 production of plastics materials will be between 6,545m. and 6,773m. lb. SPI also estimates that 1960 plastics production was 6,158m. lb. compared with 5,864m. lb. in 1959 and 4,518m. lb. in 1958.

●**Sweden** — Uni-Kemi, the concern set up jointly by Stockholm Superfosfat and Union Carbide, will have a capital of Kr.40m. (£2.8m.). The concern is to build a polythene plant near the projected Esso cracker at Stenungsund. The plant is expected to come into operation in the middle of 1963.

●**West Germany** — Sales of Chemische Werke Hüls AG in 1960 rose by 14% from DM612.5m. to DM700m., Professor Baumann, the chairman, reported in Marl. Major projects achieved in 1960 included erection of a wet phase carbon black production unit, automation of the plasticizer production, expansion of the PVC paste output and the extension of the pipeline system to Leverkusen.

●**United Kingdom** — A fire at the Coventry factory of the Dunlop Rim and Wheel Co. on January 16 damaged car and aircraft tyres and foam rubber upholstery materials. The blaze was in the main stores, comprising several wooden buildings. A spokesman said that the fire would not affect production.

'Now, young man, I want you to thrash around, snoring like hell — if I'm asleep in ten minutes, it's a deal!'— 520

A medium thermal British made black for natural and synthetic rubbers, belting, hose, tyres, tubes, footwear, oil-resisting rubbers and high-grade mechanicals. Gives good flexing, high resilience, very easy processing, low heat build-up, and low modulus.

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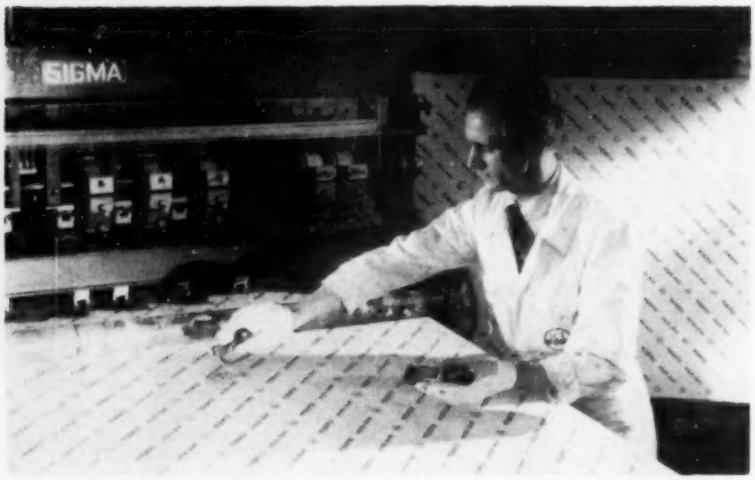
Perspex Expansion Programme

I.C.I. MARK JUBILEE WITH MORE EXTENSION PLANS

IMPERIAL Chemical Industries has announced that it is planning further extensions for the production of Perspex acrylic sheet. These extensions, which the company says 'can be realized very rapidly,' are in addition to those already in progress, which will bring capacity up to 20,000 tons a year by 1962 and will cost £1m. Methyl methacrylate monomer production is being geared to this expansion programme.



Covering sheets of Perspex with protective paper at I.C.I.'s Wilton works

First Commercial Sheet

The present combined capacity of the Perspex plants at Billingham, Wilton and Darwen is 17,000 tons.

I.C.I.'s announcement coincides with the silver jubilee of Perspex — the first commercial acrylic sheet was cast 25 years ago at Billingham. To mark the occasion the Council of Industrial Design has collaborated with I.C.I. in preparing an exhibition of Perspex products. Called 'Design in Perspex,' it opened at the Design Centre, Haymarket, S.W.1, on January 16 and will run until February 11.

One of the latest applications of acrylic sheet is for printed circuits, and a British firm is said to have had success in producing a printed circuit with copper conductors on Perspex. Preliminary tests carried out claim to have shown that the printed circuit panels are of very high resistivity and the bonding of the copper is satisfactory. The electronic industry has shown considerable interest in this application.

Dunlop Goes Fishing

Dunlop Rubber Co. has acquired one of Britain's leading manufacturers of fishing rods, and the world's largest makers of sporting fish hooks: Edgar Sealey and Sons Ltd., of Redditch.

Over 60% of Sealey's sales are made overseas, the principal markets being the USA, South Africa and Australia. Distribution of the company's products by Benjamin Crook and Sons Ltd., of Huddersfield will continue, Dunlop says.

H. J. Morton, general manager of Dunlop Sports Co. Ltd., has been appointed to the Sealey board, which otherwise remains unchanged.

VITAFOAM FORMS PLASTIC COMPANY

Vitafoam Ltd. has formed a reinforced plastics company. Called Vitesta Ltd., it will supply a complete glass fibre moulding and design service to chair manufacturers. Aidron Duckworth has been appointed design consultant to the new company.

A standard range of shells has been designed which will be displayed for the first time at the Furniture Exhibition in February.

The addition of GRP mouldings to Vitafoam's range of chair components is part of a rapid expansion into the furniture field. The firm now supplies latex foam cushions and moulded units, polyether cushions, rubber strappings and PVC foam sheeting for welding applications.

Texicryl Price Cut

Scott Bader and Co. Ltd. announce that the prices of several grades of their Texicryl acrylic emulsions have been reduced by between 2d. and 5d. per lb. depending on solids content.

These emulsions are used for paper coating, surface coating and numerous adhesive and textile applications.

Leipzig in Spring

Bakelite Ltd. and Telegraph Construction and Maintenance Ltd. will be exhibiting at the Leipzig Spring Trade Fair for the first time ever this year.

The 10 day fair, which opens on March 4, will cover about 3.2m. sq. ft. and there will be about 9,000 exhibitors from 50 countries, including USA and China.

BPF Application Rejected

NO MARKING ORDER FOR FOREIGN PVC SHEET

THE British Plastics Federation's application for a Marking Order for imported polyvinyl chloride sheet has been rejected by the Board of Trade. The application was considered by a special Standing Committee appointed by the President of the Board of Trade.

BSI Specifications

The BPF stated that a Marking Order was in the public interest, as it was impossible to tell whether the sheet was foreign or not, or to determine its quality. The Federation added that they had initiated the drawing up of two British Standard Institution specifications, to which most of UK sheet conformed.

Poor Quality Material

Much foreign sheet was equally satisfactory, said the applicants, but they asserted that quantities of poor quality material were being imported without any indication of origin.

The Standing Committee, which published a report on its findings this week, stated that it accepted the contention of opponents to the application that 'the origin of the goods is already known to the majority of purchasers and users.'

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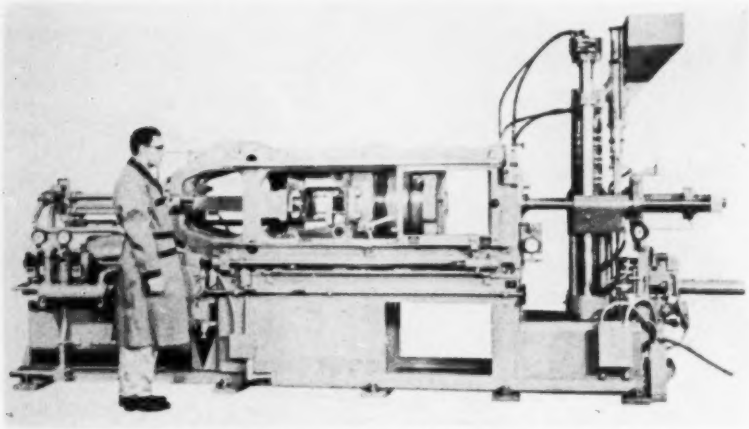
Brockhouse Buys Denton Plant

LESTER RANGE OF MACHINES MAY BE EXTENDED

J. BROCKHOUSE AND CO. LTD. has bought a machine tool factory — complete with machine tools — at Denton, near Manchester. The company says that this purchase has been made to meet the increasing demand for the Lester L-225-6/9oz. injection moulding machine, which was recently reintroduced.



The Lester L-225-6/9oz. automatic injection moulding machine

The 6/9oz. Lester-Automatic is designed to injection mould with or without an operator, up to 6oz. of polystyrene (9oz. using double feed) or 27.5 cu. in. of any other granular thermoplastic material. It is a general purpose machine, but its very high cycling speed, combined with very long mould stroke, are said to give it an exceptionally good performance in the production of thin-wall container type parts. The machine consists of a vertical electrically heated plasticizing assembly in combination with a hydraulically actuated toggle mechanism for locking moulds.

The additional capacity at Denton will, the company comments, allow it to continue its policy of building machines in large batches. Sufficient capacity is also said to be available for the extension of the Lester range of machines and for 'other interests in plastics equipment now under consideration.'

GSA Sales Rumours Denied

The General Services Administration in Washington denied absolutely rumours that it was going to resume selling rubber at current market levels.

Traders said that vague reports had circulated in rubber markets abroad and in New York that the GSA was ready to sell rubber below 30 cents a lb.

Dunlop Wins Ferodo Trophy

The Ferodo gold trophy, awarded annually for the most outstanding British Commonwealth contribution to the sport of motor racing, has been won by the Dunlop Rubber Co.

The winner of the trophy was decided by an independent panel of assessors. They selected Dunlop, whose tyres were used on all racing cars in all the 1960 formula Grandes Epreuves because, it was stated, developments in tyre design had added several miles an hour to lap speeds.

This is the first time Dunlop has won the trophy.

Northern Polytechnic's New Principal

Dr James Leicester, aged 44, who is head of the department of applied chemistry at the Northampton College of Advanced Technology, Clerkenwell, has been appointed principal of Northern Polytechnic.

He succeeds Dr T. J. Drakely, aged 70, principal from 1931 to 1955, who returned from retirement to be acting principal in 1958 after the death of his successor, Dr A. S. M. Symons.

Argentine Complex Approved

FIVE US FIRMS TAKE PART IN $70m. VENTURE

THE plans of five US firms to build a $70m. petrochemical complex in Argentina have been approved by the Argentine Government. This was announced in New York on January 17 after President Frondizi of the Argentine had signed the construction plans. As previously reported (*RJIP*, Sept. 3, 348) the plant will manufacture synthetic rubber, benzene and other chemical intermediates.

The complex — the first in Argentina — will be operated by Petroquimica Argentina SA in conjunction with the Fish International Corp., the United States Rubber Co., the Continental Oil Co., the Cities Service Co. and the Witco Chemical Co. It will be cited at the port of San Lorenzo, about 230 miles from Buenos Aires.

An Excess of Styrene

The capacity for synthetic rubber is expected to be 45,000 tons, and 7,000 tons of styrene will be produced in excess of the quantity used in making the SBR. 11,500 tons of carbon black will be manufactured.

Petrochemical raw materials will be supplied by the Argentine State Petroleum Agency, Yacimientos Petroliferos Fiscales. Two pipelines, built by Fish International for the Argentine Government, will transport the materials from the agency's oil and gas fields and refineries in the northern Argentine area of Camp Duran.

A spokesman in New York said that the complex, when completed, would save Argentina about $25m. a year in foreign exchange, bring in about $70m. in foreign investment and channel into the Argentine economy an additional $14m. a year for wages and material purchases. He estimated that production by some units would begin within 18 months, and that the final unit would be in operation in about three years. At least 90% of the employees, including top technicians and executives would be Argentine citizens, he added.

A Day on Foam

A one day symposium on foamed rubber and plastics is being arranged by the London Section of the Institution of the Rubber Industry and the Plastics Institute. It will be held at the Institution of Electrical Engineers, London, on May 5 1961.

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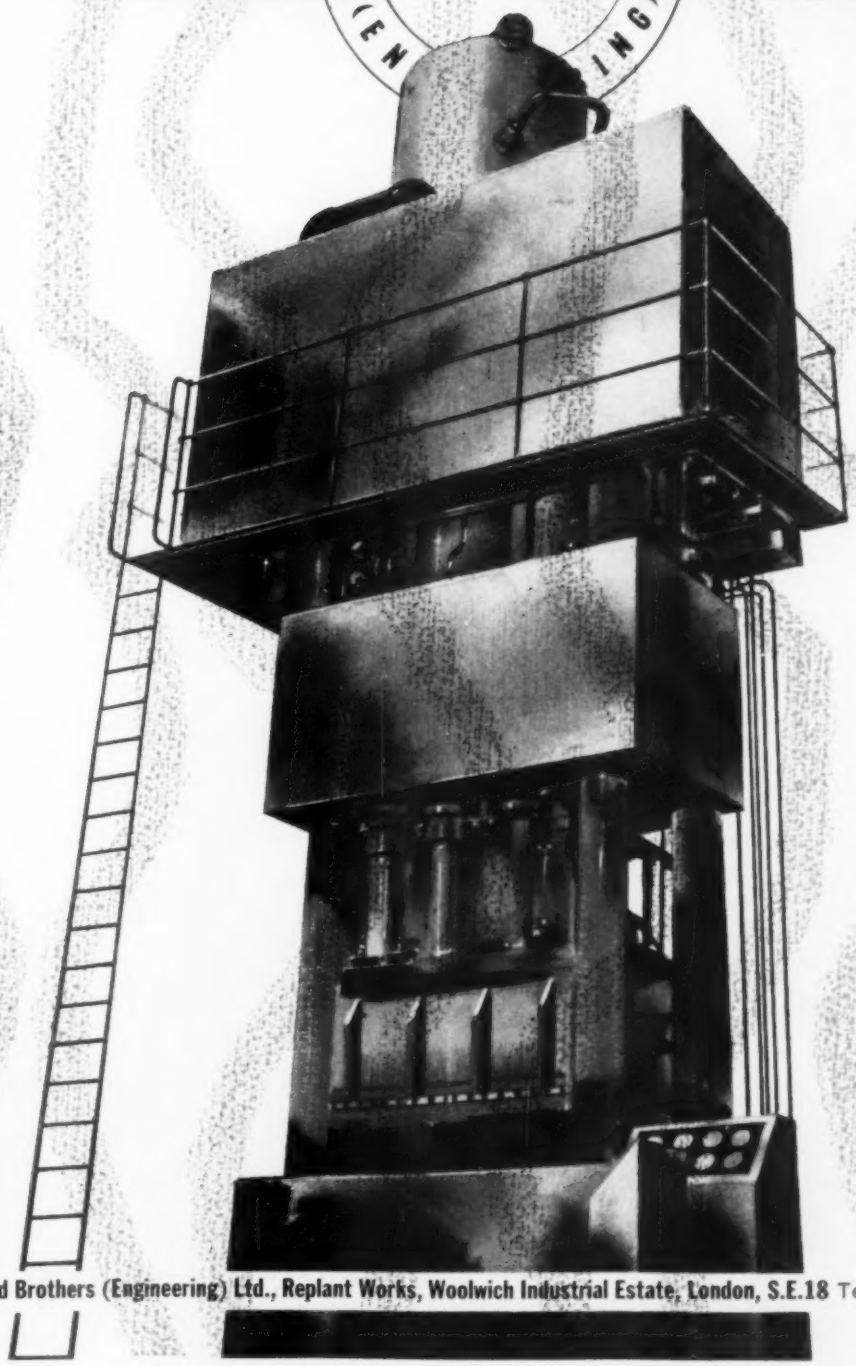

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Thermoplastic Welding Terminology

TENTATIVE RECOMMENDATIONS BY JOINT COMMITTEE

THE joint committee on the welding of thermoplastic materials which is sponsored by the Plastics Institute, The British Plastics Federation and the Institute of Welding has been examining the existing terms and definitions for the welding of thermoplastic materials. The Committee is of the opinion that some improvement in the definitions is desirable, and that a number of further terms should be included. A study of this subject was undertaken and a list of recommended terms and definitions has been prepared. This list, which is printed below, has been approved by the three sponsoring organizations for issue as a tentative recommendation.

The references following certain definitions indicate the British Standard in which the term is already defined.

The Joint Committee will welcome comments on the recommended terms and definitions; comments may be submitted to any of the three sponsoring organizations.

Dielectric Welding
See—High Frequency Welding.

Filler Rod
A rod of thermoplastic material used in hot gas welding, to provide a source of softened or molten material to fill a welded joint. (BS 1755:1951—No. 7605.)

Flame Sealing
A welding process in which the surfaces to be united are softened by the heat of a flame.

Friction Welding
A pressure welding process in which the surfaces to be united are softened by heat generated by friction. (BS 1755: 1951 — No. 7611.)

Heat Sealing
A term applied particularly in the packaging industry to the welding of thin thermoplastic materials (generally below 0.020in.).

Heated Tool Welding
Radiant Heat Sealing.
Radiant Heat Welding.
A pressure welding process in which the surfaces to be united are softened by conduction or radiation of heat from heated tools.

High Frequency Welding
Dielectric Welding.
A pressure welding process in which the surfaces to be united are softened by heat produced by a high frequency field. (BS 1755: 1951—No. 7602.)

Hot Gas Welding
A pressure welding process in which the surfaces to be united are softened by a jet of hot air or inert-gas produced by a welding torch. (BS 1755: 1951—No. 7603.)

Impulse Sealing
A pressure welding process in which the surfaces to be united are subjected to rapid heating followed by cooling, pressure being maintained over the whole of the cycle.

Induction Welding
A welding process in which the surfaces to be united are softened or melted by heat transferred from an electrical conductor which is embedded in the thermoplastic and is itself heated by currents induced in it by an alternating magnetic field.

Molten Bead Sealing
A welding process in which the thermoplastic material at the joint is melted by the extrusion of molten beads on top of two overlapping sheets.

Pressure Welding
Any welding process in which the weld is made by sustained pressure while the surfaces to be united are in a softened condition. (This definition is based on BS 499:1952 — No. 2401.)

Radiant Heat Sealing
See — Heated Tool Welding.

Radiant Heat Welding
See — Heated Tool Welding.

Seam Welding
(including continuous and intermittent heating processes.)
A pressure welding process which forms a continuous welded seam in which the surfaces to be united are softened either by heat produced by a high frequency field or by conduction of heat from heated rollers or bars. The pressure may be applied continuously by rollers or progressively, as in stitch welding. (BS 2759: 1956 — No. 427.) (BS 1755: 1951 — No. 7608.)

Spot Welding
A pressure welding process in which a relatively small area of the surfaces to be united are softened either by heat produced by a high frequency field or by conduction of heat from heated electrodes. (BS 2759:1956 — No. 428.) (BS 1755: 1951 — No. 7610.)

Stitch Welding
A pressure welding process in which the surfaces to be united are softened either by heat produced by a high frequency field or by conduction of heat from heated tools. The pressure is applied progressively along the joint by two mechanically operated metal fixtures. (BS 1755:1951 — No. 7607.)

N.B.—This definition does not include high frequency welding with patterned electrodes simulating stitch markings.

Ultrasonic Welding
A friction welding process in which the friction is intermolecular and is set up by ultrasonic vibration.

Welding Torch
A device used in hot gas welding to heat air or an inert-gas and to direct it in the form of a jet on to the area to be welded. The gas may be heated electrically or by passing it through a tube heated by a gas flame. (BS 1755: 1951 — No. 7604.)

The term 'sealing' is currently used and appears in the above terminology. In every case above it means welding and the Joint Committee recommends that consideration be given to the future elimination of this unsatisfactory term.

V. Capitanio (left) has been appointed footwear sales manager of Pirelli Ltd. Mr Capitanio joined the company in 1936 and, apart from a year with Pirelli in Brazil, has been in the central buying office of the company ever since. Discussing a sales point with him is P. A. Taverner, who has been appointed assistant footwear sales manager

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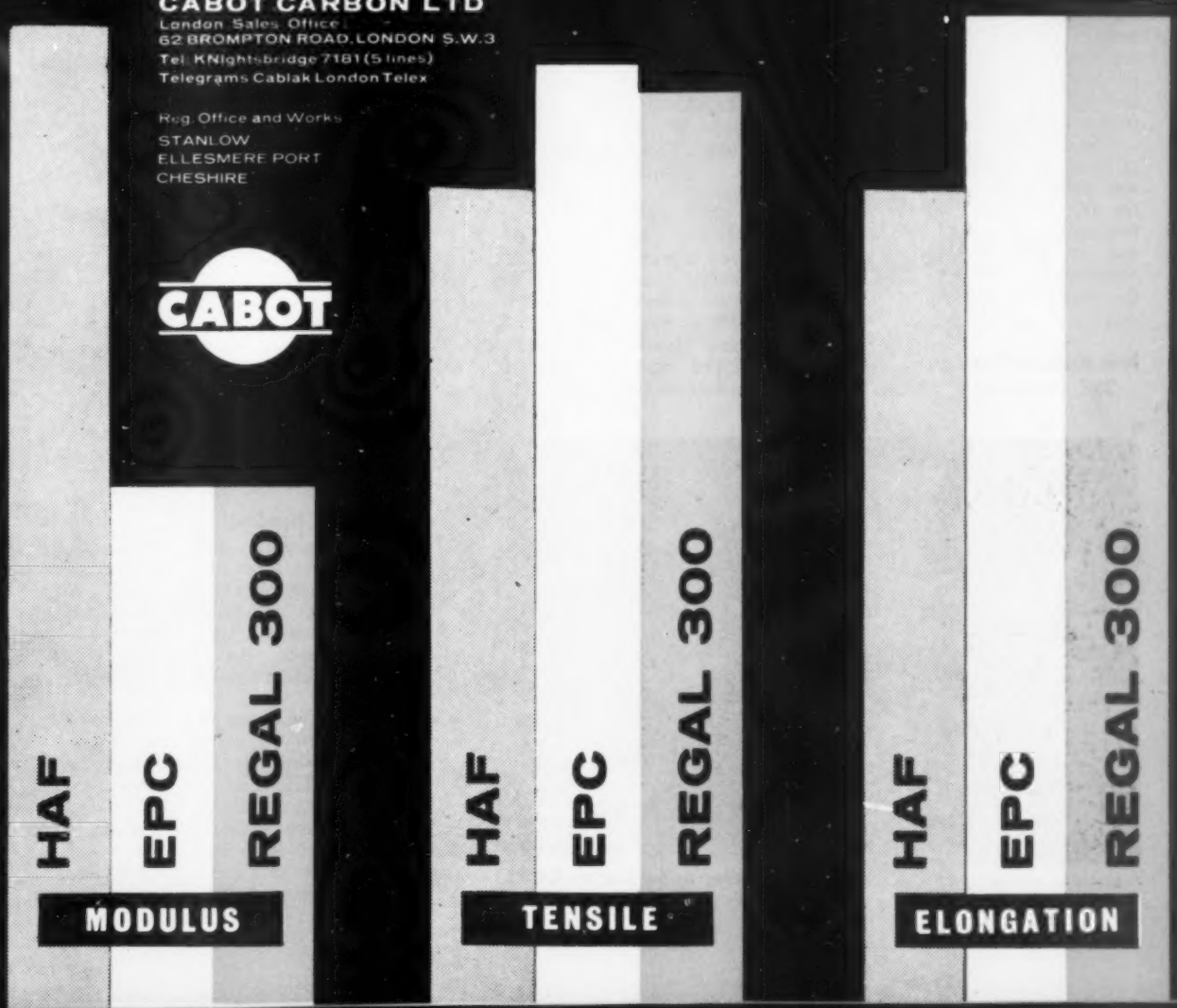

The Rubber Industry in Hungary

NEW PLANTS UNDER CONSTRUCTION

THE Hungarian rubber industry is more than 100 years old. The 'Kölle-Jung First Hungarian Elastic Resin Factory' was founded in 1846. This factory was replaced about 80 years ago by the Rubber Goods Factory, which still plays a leading role.

The latter, built in 1882, at first employed only 40-50 workers and produced technical rubber goods for the railways. By 1913 nearly all known rubber articles were manufactured there and some of them were being exported.

In the interval between the two World Wars the rubber industry developed slowly but steadily. The Rubber Goods Factory had already become the greatest chemical concern in Hungary.

After 1948 the production of the rubber industry rose considerably. The Rubber Goods Factory alone increased its production seven-fold in the course of nine years and new plants were also established, equipped mainly for the production of technical rubber goods.

The development in the production of tyres for passenger cars and trucks was particularly important. During the ten years after 1948 the products had increased by more than five times and in 1958 300,000 tyres were manufactured. Of these 220,000 were for trucks and 80,000 for passenger cars.

Raw Material Production

The development of the rubber industry was furthered by the fact that it can buy some of the raw materials, such as chemicals, blacks, mineral fillers and softening agents within the country, whereas before the war the supply of materials was almost completely dependent on imports. A considerable amount of raw rubber consumed by the Hungarian rubber industry comes from the USSR and China.

Due to the constantly growing demand for rubber goods, the factories had to be enlarged. In 1960 a large-scale reconstruction was started and should be finished by 1965. The largest concerns being located in Budapest, the possibilities for enlargement by building are rather limited. Therefore development is mainly accomplished by mechanical reconstruction.

A new gasoline recuperating installation was completed in the Rubber Goods Factory in 1960. In the same year, this factory put into production some new automatic vulcanizing production lines, twin curing machines, semi-automatic tyre building machines and a large-size rubber mill. The construction of a new chain conveyor for tyres was also completed. As a result of this increased capacity, a rise in production of 60,000 tyres is expected for 1961. In 1965 a new workshop building of 25,000 sq. metres will be built in the Rubber Goods Factory and will be equipped with new automatic and semi-automatic machines.

A general view of part of the tyre building shop in the Rubber Goods Factory in Hungary

In the years between 1961 and 1965 a new factory for technical rubber goods, also equipped with the necessary machines for the production of tyres, will be built in the country. In the city of Vác there is a modern factory under construction, which will be producing rubber solution at the rate of 1,000 tons per year. This is expected to start production in 1961.

Tyre Retreading

By 1965 the production of the rubber industry will double its present output. The increase in the tyre production is considered of paramount importance. According to the plan the factories will produce in 1965 430,000 truck tyres and about 200,000 tyres for passenger cars. In addition, a new up-to-date tyre repair plant will be built in Vác, where it will be possible to retread 75,000 tyres per year. This factory is expected to start work in 1962. Technical rubber goods production is also developing rapidly and should be doubled by 1965. Reconstruction will be finished by 1962 and consists mainly in the introduction of new up-to-date equipments for the production of raw materials and for curing.

At the same time manufacture and export of technical rubber goods, inflatable rubber mattresses and toys is being continued. 1960 export figures show, in comparison with 1959, an increase of about 20%; 75% of exported rubber goods are marked for western countries.

The export of technical rubber goods will have reached five times today's volume by 1965.

Increase in Synthetic

An important aim within the development is to increase the proportion of synthetic rubber used. At present only 36% of synthetic rubber is being used in the production of rubber goods. The intention is to increase this ratio considerably by 1965.

The development is not only concerned with the increase in volume, but also with the improvement of quality. The main endeavour is to improve the quality of tyres and to increase their service life. Satisfactory results were attained with the manufacture of a new type of highly resistant tyre. A start was also made

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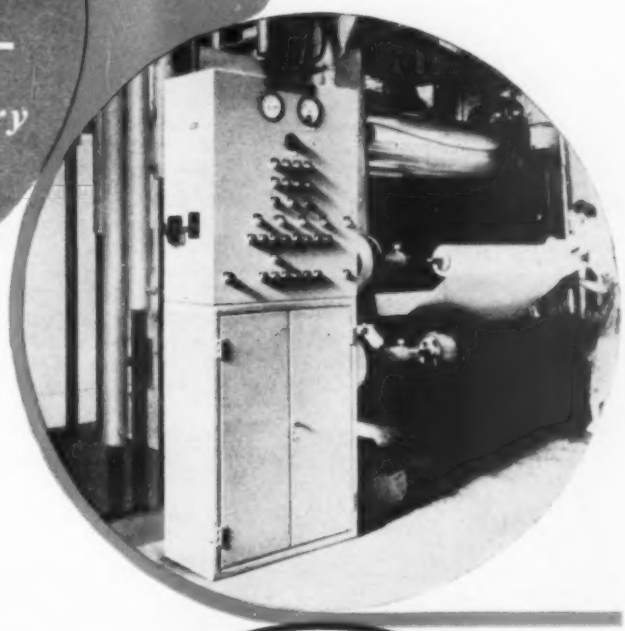

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with the production of new, wear-resistant treads.

The Research Institute for the rubber industry founded in 1949 is in a large measure responsible for the improvement in quality. At present research work is being carried on in the field of rubber rheology and on the mechanism of rubber absorption and desorption. The study of the mechanism of swelling was of direct practical help in testing oil-resistant compounds and elaborating the new reclaiming process.

Wide Research Field

Research activities in the field of formulation and general technology cover a wide field. The results of experiments on the production and use of oil-extended synthetic rubbers are already being applied and the industry is making practical use of the new reclaiming process in presence of surface active materials, of the new formulae for rubber coating of paper calender rolls and of the new technology in the production of rubberized textiles permeable to air and water vapour and other products.

Research has also developed the method of producing oil containing active black as well as the technology of production of oil-black-synthetic rubber batches with latex.

The newly-developed method used in the impregnation of plies made of rayon and of artificial fibres, has also proved satisfactory and is being used extensively not only in the tyre production, but also for other products containing artificial fibre plies.

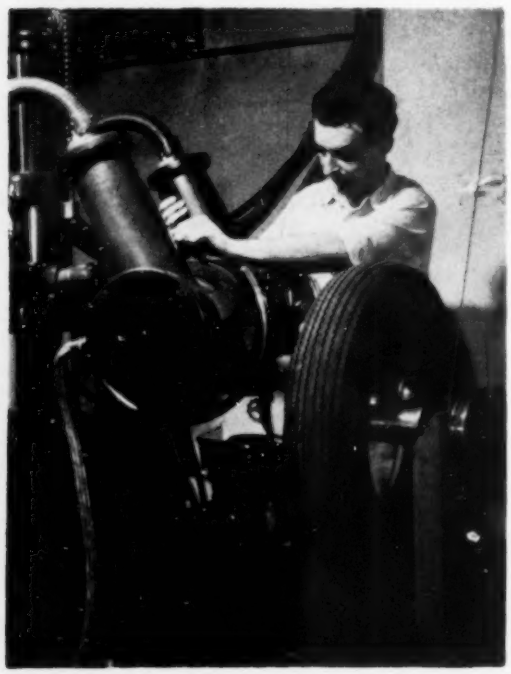
Tubeless Tyres

The optimum stretching factors determined for the manufacture of passenger car tyres increased the length of life of the newly-designed tyres by 20 to 30%. The design and technology for tubeless tyres for passenger cars has also been worked out, but their production has not yet started.

There are also many interesting results in the field of new test-methods. These include testing rubber for air permeability, the non-destructive testing by X-ray methods of various rubber articles, the comparison of different hysteresis test methods, a method for the evaluation of tests on sole folding machines, and the fatigue test of tyre-cord yarn on laboratory scale.

Research in another field, but which has applications in the rubber and plastics industries has been carried out at the Hungarian Varnish Paint Factory. This has been an attempt to produce organophil bentonites and a patent on their process has been applied for.

The high standard of technical and production experts active in the Hungarian rubber industry as well as the planned considerable investments are a guarantee for the future steady development of this branch of industry in Hungary, with regard to quantity as well as to quality.



X-rays are used for the non-destructive testing of rubber articles. In the photograph the composition of the inner structure of a tyre is being tested

TRUCK TYRE WITH THREE-RIB DESIGN

A new truck tyre — Transport 100 — that features a three-rib bladed tread design has been introduced by The Firestone Tire and Rubber Co., of Akron.

Checking the air pressure in the new Firestone tyre prior to a skid test. More than 100m. miles of tests on 9,500 tyres preceded the introduction of this tyre

This tread design, which is a departure from the more conventional five-rib design, will, it is claimed, give the tyre 50% more mileage than previous 100 level Firestone original equipment truck tyres. Firestone say that a broad centre rib with extra large tread elements arranged in a rope-like pattern and improved rubber compounds will enable the tyre to run cooler.

Other features are a flatter crown for equal pressure throughout the tread print and extra load hauling efficiency, stone guards in the tread to keep it free of damaging gravel and pebbles, and a tread design especially engineered with varying size tread elements to eliminate tyre whine.

Big Order for Latex Mattresses

Some 67,000 latex foam mattresses are being supplied by Vitafoam Ltd. to Britain's armed forces under a contract signed last week worth about £470,000. It is believed that this is the largest single order for latex foam mattresses ever placed.

The RAF will take 8,000 of the mattresses, the rest being supplied to the Army.

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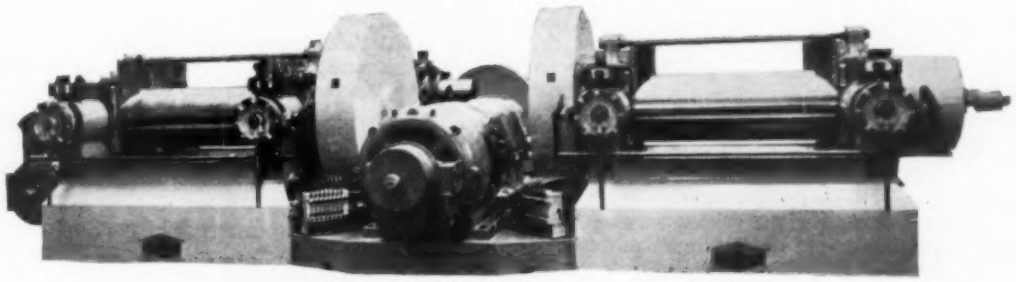

A new Standard Design 22" x 60" Twin Mill arrangement on a Cast Iron Combination Vibro Mounted Bedplate with 200 H.P. Central Drive having a Spiral Bevel Helical Reduction Unit and Motor with Plug Braking Reversing Contactor Control and Lunn Type Low Position Safety equipment.

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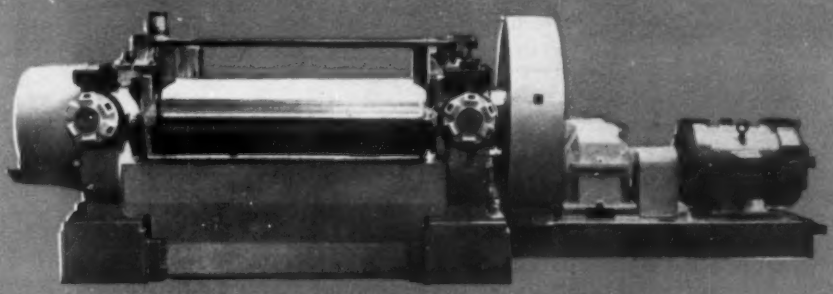

26" x 26" x 84" Mixing Mill with Cast Iron Combination Bedplate, Vibro Mounted and 150 H.P. Drive including D.H. Reduction Unit and Slipring Motor with reversing Contactor Control, suitable for emergency plug braking and Lunn Safety Equipment. Lubrication to Main Bearings by Wakefield Motor Driven Forced Feed Unit.

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VIEWS *and* REVIEWS

ARDENT collectors of bon mots will have noticed the phrase 'sport the plastic' in a recent issue of the *Observer*. What does it mean? The *Observer* called it 'a new ploy in absolutely effortless prestige-advertising.' It originates from the fact that if you are a shopkeeper supplying goods or services to the corps diplomatique (and have been so acknowledged by the Court of St. James) you are entitled to hang a typed certificate on your wall and a plastic plaque, bearing the letters 'CD,' in your shop window.

Sporting the Plastic

Of course, plastics are sported for advertising purposes in many other ways. At present we are witnessing an enormous increase in the use of plastics in advertising, especially in packaging.

In a later issue I want to deal with the technical aspects of this subject but first I want to clear the ground a little. Packag'ng is not packing. It is, if I may be excused, packing with knobs on. And it is the knobs I am up against.

Some things have to be wrapped up — whisky, twopennyworth of mignonette seeds, and the liver for Saturday's lunch. Other things do not need it, but they get it. Now, I do not want my tube of toothpaste wrapped in a folder of advertisements and 'instructions,' and inserted in a box designed to give me the impression that the tube is twice as big as it really is. And shaving soap is dear enough without nestling it on a royal-purple cushion in a high impact polystyrene container shaped like the imperial crown. If our packaging experts want to 'sport the plastic' let them for the sake of the reputation of our industry consider these things: cost, ease of opening, ease of disposal, and fittingness.

The Hidden Persuaders

All this is straightforward stuff compared with the 'depth approach' of modern publicity, if I am to believe the revelations of *The Hidden Persuaders* by Vance Packard published in 1960 as a Penguin Special.

'It is about the way many of us are being influenced and manipulated — far more than we realize — in the patterns of our everyday lives. Large-scale efforts are being made, often with impressive success, to channel our unthinking habits, our purchasing decisions, and our thought processes by the use of insights . . . beneath our level of awareness.' It is psychiatry and psycho-analysis and sociology which 'have come along providentially to furnish awesome tools' for engineering our consent.

'A considerable number of our industrial concerns (including some of the largest) are seeking to sift and mould the behaviour of their personnel — particularly their own executives — by using psychiatric and psychological techniques.' Politicians too, it seems, are reducing us more and more to the condition of Pavlov's conditioned dog.

The book says that a majority of our advertising men, publicists, and politicians still 'do a straightforward job and accept us as rational citizens (whether we are or not)' but it is the 'new operators in depth' who play on our deep, unrecognized motives and emotions who are the sinister forces it seeks to expose.

Some practical example is given by tyres, in the chapter entitled 'Coping With Our Pesky Inner Ear.'

'Major tyre makers for years have had to cope with a peculiarity of our inner eye that has kept them in trouble with customers. It seems that we become aware of the brand tyre we have on our car at the worst possible psychological time, when we've had a blowout or leak, perhaps on a lonely road . . . The name of its maker is for the first time really seared into our minds. Dr Dichter, who made a study of the tyre problem for the B. F. Goodrich Co., concluded that tyre companies had made the mistake of telling customers their tyres were so good they could put them on the car and forget them. That was what the customers did — forget them — until they were brought back into an intense state of tyre awareness by a tyre failure. The problem, he advised, was to keep telling people to look at their tyres and be thankful they had again performed Trojan service . . . .'

Remembering the slogan of one of our British tyre manufacturers some years ago, I should say that this is nothing new on this side of the Atlantic, and that indeed the reasons are even more subtle and 'in depth' than those of Mr Vance and Dr Dichter.

Analysis and Testing

While the great strides forward are made by new syntheses, accurate analysis is a prerequisite. I have a number of papers on analysis and testing to draw to your attention in the foreign technical literature of the past few months.

In *Kunstoff-Rundschau*, November 1960, Vol. 7, No. 11, pp. 523-9 there is a useful contribution by Dr K-D. Ledwoch entitled 'The Analysis and Testing of Plastics in the Journal Literature of 1959.' It is the third of a series of annual reviews appearing in this journal and now covering the years 1956, 7, 8 and 9. Altogether 145 references are collected in the following group classification:

0. General analytical work related to the whole field of plastics.
1. Thermoplastics
   - 11 Chemical test methods
   - 12 General physical test methods
   - 13 Spectroscopic test methods
   - 14 Electrical test methods
   - 15 Mechanical test methods
2. Thermosetting plastics
3. Natural high polymers
4. Raw and auxiliary materials, other polymers
5. Finished products
6. Instruments, apparatus
7. Standards, instructions.

This review seems to me — not an expert in this field — a very good summary.

One of the problems in vulcanization is the determination of the degree of cure: there have been, and there will be many attempts to solve it. A contribution is made by H. Wiegand and H. Wallhausser in their paper 'Determination of the Degree of Cure in Thermosetting Materials' published on pages 598-605 of *Kunstoffe* for November 1960, Vol. 50, No. 11. It concerns mainly the formaldehyde resins with phenols, amines, thiourea, and also

COMMENT ON SCIENTIFIC AND INDUSTRIAL MATTERS

by **F. C. JENNINGS**

polyesters, and suggests a method which can be used when the size or shape of a moulding prevents the employment of conventional tests. The boiling test is shown not to be very informative but better results are obtained by a determination of the proportion of soluble matter which is shown to be a measure of the state of crosslinking.

Vibration Systems of Molecular Structures

An excellent account is given in *Kautschuk und Gummi* for September 1960 (Vol. 13, No. 9, pp. WT262-276) of the 'IR Spectroscopic Analysis of Rubber and Plastics' by Dr H. Bartowski. It begins with fundamental considerations leading to the relationships between molecular structure and frequency, and goes on to a survey of the present applications of the technique. The vibration systems of a variety of molecular structures are explained and illustrated, and examples are given of the spectra of a number of typical atomic arrangements from which the characteristic group frequencies can be recognized. The influence exerted by adjacent molecular groupings is clearly explained. A section of the paper is devoted to methods of preparing the sample.

The results of applying the technique to rubbers and plastics is considered in some detail in several sections: styrene and polystyrene, polyisoprene, polybutadiene, and butadiene-styrene copolymers, chlorine-containing polymers; nitrogen-containing polymers; spectra of vulcanizates; and spectra of pyrolizates. There are reproductions of the characteristic spectra for many of these substances.

Chromatographic Analysis

The analyst will be interested in the paper by Stirling and Ho in *I/EC* for November 1960 (Vol. 52, No. 11) on pages 53A-55A. It gives a useful summary and descriptions of 'Ionization Detectors for Gas Chromatography.' Conventional detectors such as thermal conductivity cells or gas density balances are somewhat limited in their sensitivity, but ionization detectors are relatively independent of the properties of the carrier gas, responding directly to the sample gas.

The most efficient seems to be the process involving collision between the molecules in the effluent gas with molecules of metastable atoms of argon.

'The metastable atoms are produced by the electron bombardment of argon gas at atmospheric pressure. The electrons are obtained from a radioactive source and are accelerated in a strong electric field. Ionizing efficiency, which is many 'orders of magnitude' higher than the simple beta-ray gauge, and the background noise, which is associated with the radioactive source, is correspondingly reduced, thus allowing high sensitivities to be achieved.'

There are several kinds of argon ionization gauge, based on, for example, different means of producing metastable argon, or different electrode arrangements. The smaller types, including those with triode detectors, are linear over a wide range and are broadly independent of flow rate.

The hydrogen flame detector is linear over a wider range than the argon detector and it is claimed to have a limit of 0.1 parts per billion. It is a simple device in which the electrical resistance of a flame between a fine jet and an adjacent electrode is measured. One advantage is its relative insensitivity to water vapour.

The gas discharge detector has a number of drawbacks and a lot of work has been done on it which, while improving it, has not made it entirely successful. The high vacuum ionization detector, especially as developed by Hinkle and his co-workers, though complex, is an elegant detector which 'responds to all vapours, is insensitive to flow rate and carrier gas temperatures, and, as it requires a very small sample, it is ideal for use with capillary columns.' Beta-ray gauges are relatively insensitive but their chief disadvantage is 'the necessity of using strong radioactive sources to obtain good ionization.

'Most of these detectors give currents of the order of millionths or billionths of a microampere and require the use of electrometer techniques. The glow discharge detectors, however, yield currents of the order of milliamperes for medium sample concentrations and are very useful for routine laboratory work.'

The article gives a list of the ionization detectors available in the USA including some from British makers.

Cross-linked Celluloses

In the same issue of *I/EC*, on pages 935-7 is presented some investigational work by Guthrie and Bullock on chromatographic separation by means of ion-exchangers based on celluloses. They are particularly valuable, it is claimed, for separating amino acids, proteins, enzymes, nucleic acids, hormones, and viruses. They have the advantages of being finer than ordinary resins and so have a large surface area, while their structure is open and porous so that large molecules, not readily adsorbed by resins, can enter. They are made as pulp, fibre, yarn, fabric or paper.

The paper describes methods for making anion exchangers such as aminoethylated cellulose and cation exchangers like sulphoethylated and phosphonomethylated celluloses. Higher ion exchange capacity can be achieved by cross-linking the cellulose before or during the chemical modification, and most of the paper is concerned with the work done on these reactions. A simple test for deciding whether cross-linking had occured was devised and by its means a number of possible cross-linking agents were found. These were then examined in more detail. Formaldehyde was one of the simplest discovered but dichloroacetic acid and dichloropropanol gave very good results. These reactions are worthy of study from a much wider angle than ion exchangers.

Analysts are now very conscious of lack of precision in even well-accepted methods and during the last few years technical journals have carried many papers on aspects of the matter, especially on the statistical design of tests and the variations observed between different testers. A simple, short paper on the subject by W. S. Connor of the Research Triangle Institute appeared in the October 1960 issue of *I/EC* aimed at illustrating the sources of variation which may occur in an interlaboratory test and to show how they may be assessed in a single study. Altogether 256 samples were tested by two methods in four laboratories.

The results showed that the main bulk (made up of the 256 samples) had no important variation, there were significant variations between the four laboratories, one of the laboratories was itself markedly imprecise and particularly when its analyses were done at different times, and finally it was shown that there was little to choose between the two methods in precision.

This paper (*I/EC*, Vol. 52, No. 10, 71A-73A) is a good model for others to copy.

CHARLES JENNINGS.

A Year in Review

A DIARY FOR THE RUBBER AND PLASTICS INDUSTRIES FROM OCTOBER 1959—NOVEMBER 1960

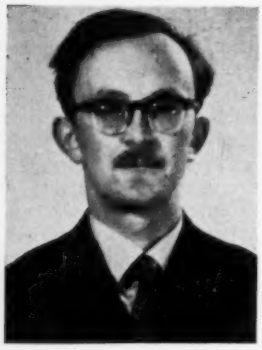
By JOHN ACRES

OCTOBER

Home

AN Autumn Conference of the Institution of the Rubber Industry was held at Southport from October 9 to 10 on the subject of 'Industrial Technical Organization.' The President of the Conference was Sir John Dean, and the chairman Sir Noel Hall. Speakers included Mr R. M. Geddes, Dr J. G. Mackay, Mr C. T. Wilkins, and Mr W. D. Scott.

The Fourth Baekland Memorial Lecture was given in London on October 22 by Professor H. Mark, under the title 'Recent Progress in Polymer Chemistry.'



THE AUTHOR

JOHN ACRES was born in London in 1931 *and joined the Intelligence Division of the Research Association of British Rubber Manufacturers at Shawbury in* 1953. *Since* 1958 *he has been on the staff of the Library Department, Imperial Chemical Industries Ltd., Dyestuffs Division, at Blackley, Manchester. A Licentiate of the IRI, he served as Hon. Secretary to the Midland Section from* 1956 *to* 1958, *and has contributed to the 'Annual Report on the Progress of Rubber Technology' since* 1956. *He lives in Hazel Grove, Cheshire, with his wife, son, and daughter, and is an active Scouter.*

The President's Reception and Conversazione of the Plastics Institute was held at the House of Commons on October 9. An inaugural lecture to the Irish Section of the Institution of the Rubber Industry, in Cork on October 2, dealing with the development of new special purpose polymers, was given by Dr W. C. Wake and Dr L. Mullins.

A new type of tyre, the BS3, with separate and replaceable tread bands, was introduced by Pirelli at the end of October.

The death occurred on October 5 of Mr J. Stopforth, a director of the Leyland and Birmingham Rubber Co. Ltd. and a founder-member of the Preston Section of the Institution of the Rubber Industry.

Overseas

The 4th Annual Report of the Attorney-General on the status of the United States synthetic rubber industry noted the competitive position of the small synthetic rubber-producing companies in the USA.

The eighth meeting of Committee ISO/TC/45 (International Standardization of Rubber) was held in New York from October 26 to 31. The Ninth Canadian High Polymer Forum was held in Toronto from October 26 to 28, and included a paper at the Forum Banquet on 'Patterns in Reactions and Polymers,' by C. H. Bamford.

The Dusseldorf Plastics Exhibition opened on October 17.

In America, on October 2, the General Services Administration announced that sales of natural rubber from the Government stockpile, without replacement, would begin on October 16, at a maximum rate of 12,000 tons per quarter. Disposals from the UK stockpile also began during October.

The Firestone Tire and Rubber Co. announced its participation in a 30 million dollar project to manufacture synthetic rubber in India.

The 1959 International Macromolecular Symposium of the International Union of Pure and Applied Chemistry was held at Wiesbaden from October 12-17.

NOVEMBER

Home

The President of the Federation of British Rubber and Allied Manufacturers gave an informal dinner on November 26 to more than 130 members and associate members of the Federation. The Silver Jubilee Dinner-Dance of the Leicester Section of the Institution of the Rubber Industry was held on November 10.

A two-day conference, 'The Influence of Plastics in Building,' was held by the Plastics Institute in London on November 19-20, and the rubber and plastics industries were well represented at the Building Exhibition which opened in London on November 18.

The Reinforced Plastics Group of the British Plastics Federation held a discussion meeting in Bournemouth from November 25-27.

Overseas

A particularly successful International Rubber Conference was held in Washington from November 8-13 under the auspices of the Division of Rubber Chemistry of the American Chemical Society, the American Society of Mechanical Engineers, and the American Society for Testing Materials. Over 75 papers, described as of a consistently high standard, were presented. The meeting included the presentation of the Goodyear Medal to Dr F. H. Banbury.

A banquet was held in Akron on November 20 on the occasion of the addition of Thomas Hancock to the Rubber Science Hall of Fame at Akron University.

The 44th Annual Meeting of the Rubber Manufacturers Inc. was held in New York on November 20.

In Holland, a new plastics research laboratory for the Royal Dutch Shell Group was opened on November 6 at Delft. A joint Phillips Petroleum Co./ANIC s.p.A company to produce carbon black in Italy was formed.

In the United States, Montecatini decided to double the production capacity of its Novamont Corporation polypropylene plant at Neal, W. Va., to an annual level of 25m. lb. Hercules Powder Co. announced plans for their second polypropylene plant, of capacity 100m. lb. per year, at Lake Charles, Pa. The Phillips Chemical Co. announced plans for a new 60m. lb./year carbon black plant on the Texas Gulf Coast.

DECEMBER

Home

The annual dinner of the Institution of the Rubber Industry and the presentation of the Hancock Medal to Mr J. H. Carrington took place in Birmingham on December 17.

A symposium on 'Rubber Cushion-

present, however, we must confine ourselves to a few of the more striking objects. The very chair upon which we are now sitting is one of the specimens exhibited by Messrs. Jennens and Bettridge, of Belgrave-square, and Birmingham. The chair is decorated at the top with two wings of Fitz Cook, and manufactured in papier maché by the exhibitors. representing happy and joyous dreams; the other thoughts—the one with bird-like pinions, and crowned with roses, Behind is displayed Hope, under the figure of the rising sun with leathern bat-like wings—unpleasant and troublesome ones. The twisted supports of the back are ornamented with the poppy, hearts-ease, convolvulus, and snow-drop, all emblematic of the subject. In front of the seat is a shell, containing the head of a cherub, and on either side of it pleasant and troubled dreams are represented by figures. At the side is seen a figure of Puck lying asleep in a labyrinth of foliage, and holding a branch of poppies in his hand.

The Day Dreamer is a most successful adaptation of this material to an altogether novel design. The same firm also exhibit the Victoria Regia papier maché Cot, designed by J. Bell, sculptor, wrought in gold and colours of emblematical devices. Also the Registered Pianoforte in papier maché (seven-octave compass), the mechanism by Dimoline, of Bristol—the form and decoration in the Italian style. Papier maché music-stool and Canterbury, en suite. The "Multum in Uno" papier maché loo table, combining chess, draughts, backgammon tables, &c. Papier maché lady's work-table, of new form, ornamented and appropriately furnished. Provisionally registered.—

THE DAY DREAMER.—JENNENS AND BETTRIDGE.

The Lotus Work-table, in papier maché, on an improved principle. Provisionally registered. Papier maché Tête-à-tête Chaise Lounge, ornamented with acanthus in white and gold. Bachelor's side-board, on a new principle. An inkstand, with group of deer and hounds, designed by H. M'Carthy, sculptor; and other elegant articles.

The exhibitors' patent process of inlaying mother-of-pearl, consists in pencilling the proposed design upon the pieces of pearl, in a vehicle adapted to resist acids, and then removing, by acids, the superfluous portions, leaving only those which are pencilled.

To recover composure in a crisis

Consider the high and rising cost of solvents. Of anything. Of everything.
What can you do without? What, in Heaven's name, can you do?
Sit down, my dear Sir. Dictate a letter to Sutcliffe Speakman: "I am interested in Solvent Recovery. I understand you will either suggest a way of recovering solvent at a profit to my firm, or will say that it cannot be done . . ."
You should now be well on the way to recovering your composure—and your solvent.
But in announcing this to your colleagues, temper your jubilation with urbanity.
After all, you always *were* rather brilliant . . .

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ing and Upholstery' was held jointly by the Research Association of British Rubber Manufacturers and the Furniture Development Council at Attingham Hall, near Shrewsbury, during December. At the London regional meeting of RABRM members on December 3, Sir Harry Melville advocated a joint research association for the rubber and plastics industries.

The National Boat Show, featuring a large number of rubber and plastics materials, opened in London on December 30.

New underground trains, featuring rubber suspension units, were introduced in London on December 14.

The acrylonitrile plant at Billingham of the General Chemicals Division of Imperial Chemical Industries Ltd. went on to full-scale production early in December. A price cut of 3d. per pound in I.C.I. polythene was effective from December 22.

Mr J. V. Crossley, home sales director of I.C.I. Plastics Division, retired on December 31.

Imperial Chemical Industries Ltd., Dyestuffs Division, plans for a factory at Thornton, near Fleetwood, to produce polyurethane chemicals, were revealed early in December. On December 3 the Blackley, Manchester, factory of the division was damaged by fire.

Forth Chemicals Ltd. announced plans to raise the capacity of its Grangemouth styrene plant from 30,000 tons to 50,000 tons per year.

Overseas

The 8th Annual Symposium on 'Technical Progress in Communication Wires and Cables,' sponsored jointly by the industry and the US Army Signal Research and Development Laboratory, was held at Astbury Park, N.J., on December 1-3, and attracted a record attendance to hear 25 papers.

Basic SBR prices in the United States were increased during December from 23.25 c./lb. to 24.10 c./lb.

It was reported late in December that Russia was to sell rubber from its stockpile. Sales from the Italian Government stockpile were also announced in December.

Industrial developments from the United States included the news that Goodrich-Gulf Chemicals Inc. were to enter the polythene field with a plant to be completed by late 1960 at Port Neches, Texas. Phillips Chemical Co. announced plans for the enlargement of its Texas plant for CIS-4 rubber to 20,000 tons/year capacity. Esso Standard revealed plans to increase the capacity of its 60,000 tons/year butyl rubber plant at Baton Rouge by 38,000 tons.

Dayton Rubber Co. and N.V. Vereenigte Nederlandsche Rubberfabrieken (Hevea) formed a joint company to sell rubber products in the European Common Market area.

A planned expansion, to a capacity of 30,000 tons/year, was announced in Japan by Nihou Geon.

JANUARY

Home

The Plastics Institute's 6th Lecture for Young People was given in London on January 1 by N. A. de Bruyne on 'Sticky Plastics.' A Young People's Christmas Lecture, organized by the South Wales and Monmouthshire Section of the Plastics Institute, was given by Dr T. T. Jones on '50 Years of Polymers and Plastics' in Cardiff on January 6, and again on the 7th.

At the Institution of the Rubber Industry Council meeting on January 26, formal approval was given to the setting up of I.R.I. sections in Ceylon and Rhodesia.

A four-day strike by 2,000 employees at the Speke factory of the Dunlop Rubber Co. Ltd. began on January 29.

Mr A. S. Bishop, chairman of Goodyear Tyre and Rubber Co. (Great Britain) Ltd., retired on January 31 after 44 years' service.

A price reduction of £5 per ton for monomeric styrene from Forth Chemicals Ltd. was effective from January 15.

An expansion of the capacity of the Hythe plant of the International Synthetic Rubber Co. Ltd. from 70,000 tons to 90,000 tons per year was announced on January 26.

Overseas

Estimates published on January 4 by the Natural Rubber Bureau quoted 1959 natural rubber production to be 2,010,000 tons, with the synthetic rubber figure at 1,600,000 tons. Estimates for 1960 were 2,050,000 tons and 1,730,000 tons respectively. The Rubber Manufacturers' Association revealed that the United States 1959 consumption of new rubber, 1,628,013 tons, was a record. Synthetic rubber accounted for 65.89% of this amount.

The Columbian Carbon Co. and Continental Carbon Co. announced plans to co-ordinate the manufacturing facilities of their European carbon black plants at Rotterdam and at Milan.

FEBRUARY

Home

An impressive exhibit from the British rubber industry, representing both the production and manufacturing aspects of the industry, was presented to the Science Museum, London, on February 3 by the President of the Federation of British Rubber and Allied Manufacturers.

Damage estimated at several million pounds was caused by a fire on February 3 at the Dunlop Rubber Co. Ltd. factory at Castleton, Rochdale.

The British Plastics Federation held its Annual Dinner and Dance on February 19 at the Grosvenor Hotel, London.

Cyanamid (G.B.) Ltd. announced plans on February 15 for a melamine plant of annual capacity 6m. lb.

The 6th Convocation of the National College of Rubber Technology was held on February 25. In his report, Dr F. H. Cotton referred to future expansion of activities at the college in the field of polymer technology.

The formation of Dracone Operations Ltd. to develop commercially the Dracone flexible barge, was announced.

Overseas

Speaking in Kuala Lumpur on February 29, Sir Geoffrey Clay, Controller of Rubber Research, outlined a plan for the fusion of existing natural rubber research organizations in Malaya and London into a Natural Rubber Research and Development Association.

Dunlop Rubber Co. Ltd. plans to establish a 400,000 tyres per year plant in Kuala Lumpur were announced during February.

The Natural Rubber Bureau appointed Mr R. F. Wolf director of technical service.

In the United States a 2m. dollar dynamometer system for high-speed tyre testing was opened in Akron on February 18 for high-speed bench testing of aircraft and car tyres. ASTM Committee D-11 on Rubber and Rubberlike Materials met in Chicago on February 3-5.

A general increase of 3-5% on United States tyre prices became effective during the month.

In Europe, Chemische Werke Huls A.G. announced that they had obtained a licence from Studiengesellschaft Kohle m.b.H. for the manufacture of polybutadiene as a tyre rubber. United Carbon Co. announced the formation of a French subsidiary to build a carbon black factory of capacity 25,000 tons/year at Port Jerome.

The Dow Chemical Co. announced plans for its entry into the tyre yarn field with a multimillion dollar Nylon 6 plant near Williamsburg, Va.

MARCH

Home

The Annual General Meeting of the British Plastics Federation, held in London on March 16, was told that 1959 sales of plastics were over 20% higher than in 1958, with exports increased by 28%, and heard some news of progress towards a joint rubber and plastics research association.

A conference organized by the Plastics Institute on 'Polymeric Progress' was held in London on March 30 and 31.

The Shell Chemical Co. Ltd. announced plans to establish United Kingdom capacity for the production of polydiene rubbers. A new range of low-structure oil-furnace carbon blacks was introduced in the United Kingdom and the USA.

Mr Harry Willshaw, chief consulting engineer of the Dunlop Group, retired from the company on March 31.

British Geon Ltd. announced plans for a new £2m. polyvinyl chloride plant to be built alongside their existing

polyvinyl chloride facilities at Barry, South Wales.

Overseas

On March 6, a new amendment to the United States Federal Food Drug and Cosmetics Act took effect, and caused some concern to rubber manufacturers.

Hypalon prices in the United States were reduced from 70c. to 47c. per lb. from March 1.

Imperial Chemical Industries Ltd. announced the formation of a company, Danbritkem A/S, to manufacture polythene, initially of the high-pressure type, in Denmark, the initial plant capacity to be 15,000 tons per year.

The inaugural meeting of the Rhodesian Section of the Institution of the Rubber Industry was held in Gwelo on March 19.

APRIL

Home

The Earl of Verulam gave the Eleventh Annual Lecture of the Plastics Institute, 'The Brink of the Unknown,' in Cardiff on April 7.

The first Annual Dinner of the British Plastics Federation was held in London on April 27.

Substantial price reductions were announced by Du Pont Co. (UK) Ltd. to 'Hypalon' synthetic rubber.

The death occurred on April 26 of Mr H. W. Franklin, chairman and managing director of J. G. Franklin and Sons Ltd.

The Annual Lunch of the Midland Section of the Plastics Institute was held in Birmingham on April 25.

Overseas

A symposium, 'Natural Rubber Today,' was held in Frankfurt on April 1 by the German Section of the Internationales Kautschukburo.

A 24,000 ton/year carbon black plant of Ketjen Carbon Ltd. went on stream on April 24 at Botlek, near Rotterdam.

The American Institute of Electrical Engineers held its 12th Annual Technical Conference on Rubber and Plastics in Akron on April 25-26.

C. P. Hall, founder of the company bearing his name, died in Akron on April 17.

Elastomer test methods, and properties and uses of new polymers, were discussed at the meeting on April 8 at Kitchener, Ont., of the Rubber Chemistry Division of the Chemical Institute of Canada. A number of papers on rubbers and plastics were presented to the meeting of the American Chemical Society in Cleveland from April 5-14.

MAY

Home

The rubber industry lost an outstanding personality on May 17 when Dr Philip Schidrowitz died at his home in Ealing at the age of 88. Tributes and appreciations were received from all over the world.

The 15th Foundation Lecture of the Institution of the Rubber Industry was given in Manchester on May 20 by Mr Maldwyn Jones, Development Director, Imperial Chemical Industries Ltd., Plastics Division, on the subject 'High Polymers: A Story of an Age in Principle and Practice.'

A three-day symposium on 'Service Life of Rubbers,' held by the Research Association of British Rubber Manufacturers at Attingham Hall, near Shrewsbury, opened on May 3. A number of papers of interest to the rubber and plastics industries were presented to an industrial convention held by British Nylon Spinners Ltd. in London on May 24-25.

The initial steps in the formation of a Humberside Section of the Institution of the Rubber Industry were taken at a meeting held at New Holland on May 26.

New ranges of economy priced tyres, especially designed for the requirements of older cars, were introduced by United Kingdom tyre manufacturers during the month.

The Maydown Works, Londonderry, of the Du Pont Co. (UK) Ltd. went on stream with the production of Neoprene on May 12. The official dedication was held on July 26. The associated acetylene plant of Carbide Industries Ltd. was officially opened during June.

The Annual General Meeting of the Rubber Growers' Association was held in London on May 20. The retiring chairman, Mr T. H. Miller, referred to 1959 as a particularly good year for the industry, with a marked upsurge in demand. Mr W. Anderson was elected chairman for the current year.

The report of a committee appointed by the British Association found that a strong case exists for a decimal coinage system in the United Kingdom, but few benefits would result from a change to metric weights and measures.

New silicone production facilities at Barry, South Wales, were shown to the technical Press early in May by Midland Silicones Ltd. A 19,000 ton/year expansion scheme for the Imperial Chemical Industries Ltd. polyvinyl chloride plant, to raise capacity to 80,000 ton/year, was announced.

Overseas

The International Rubber Study Group announced the results of its examination of the rubber supply and demand prospects for 1960. Total world consumption figures of 2,110,000 tons of natural rubber, and 1,175,000 tons of synthetic rubber, were suggested, with the respective supply figures of 2,230,000 tons and 1,810,000 tons.

Sixty papers were presented to about 350 delegates at the 'Journees Francais des Plastiques et du Caoutchouc' held in Paris from May 16-19 by the Society of Chemical Industry, the French Rubber Institute, the Research Laboratory of the French Rubber Industry, and the Centre for the Study of Plastics Materials.

The American Chemical Society, Division of Rubber Chemistry, meeting in Buffalo from May 4-6, included the Goodyear Medal Lecture by W. B. Wiegand on 'Determinants in Research.'

An International Plastics Exhibition and Convention opened in Oslo on May 19. The 10th anniversary meeting of the Sveriges Gummitekniska Forenings, held in Saltsjobaden on May 12-13, included a series of lectures on synthetic rubbers.

JUNE

Home

A young people's lecture was given by Professor Bawn at the invitation of the Burton-on-Trent Section of the Institution of the Rubber Industry on the subject of 'Rubbers, Plastics, and Fibres' during June.

The Research Association of British Rubber Manufacturers held a plastics industry Open Day during June in connexion with its proposed expansion scheme to provide research facilities for the plastics industry.

The biggest hydrocarbon cracker plant of its kind, with an annual capacity of 70,000 tons, came on stream to double the ethylene output of the British Hydrocarbon Chemicals Ltd. plant at Grangemouth.

A Liaison Committee was set up by the Councils of the Plastics Institute and of the Institution of the Rubber Industry to report on the advantages and disadvantages of closer co-operation between the two Institutes.

Overseas

The Symposium on Macromolecular Chemistry of the International Union of Pure and Applied Chemistry was held in Moscow from June 14-18. An exhibition staged in Moscow by the Plastics Division of Imperial Chemical Industries Ltd. was visited by Mr Khrushchev on June 2.

The Pernis synthetic rubber factory of the Royal Dutch-Shell Group was opened on June 24. The plant was built at a cost of about £10m. to produce 60,000 tons of styrene/butadiene rubber per year. Another new carbon black plant, of annual capacity 12,000 tons, was put on stream on June 11 by the Continental-Columbian Co. at Botlek, near Rotterdam.

In an important patent case in the United States the US District Court of Columbia awarded the General Tire and Rubber Co. a US patent for its high Mooney, oil-extended rubber for tyre treads.

A number of chemical manufacturers and representatives of the rubber and plastics industries were exhibiting at the British Exhibition in New York from June 10-26.

Several technical papers were presented to the meeting of ASTM Com-

mittee D-11 on Rubber and Rubber-like Materials in Atlantic City from June 29-July 1.

Reports from Canada indicated that the future of the Crown-owned synthetic rubber plant of the Polymer Corporation was to be studied by a Cabinet Committee.

The announcement on June 24 of plans for a French polybutadiene plant, of capacity 25,000 tons/year, to be built at Berre, Southern France, by Societe des Elastomeres de Synthese, followed the announcement in February of the Shell investment in a diene rubber plant in the United Kingdom at Carrington, near Manchester.

In the United States 13 papers on the structure and properties of elastomers were presented to a Gordon Research Conference held at New London, N.H., from June 20-24.

JULY

Home

At an Institution of the Rubber Industry Council Meeting on July 19, Dr W. J. S. Naunton, Dr S. S. Pickles, and Dr H. P. Stevens were elected life vice-presidents of the Institution.

A symposium, 'Fundamentals of Failure Phenomena in Rubbers' was held in Welwyn Garden City by the British Rubber Producers' Research Association on July 7 and 8. A two-day course, 'Developments in the Application of Computors' opened at the National College of Rubber Technology on July 11.

The Annual Meeting of the Society of Chemical Industry, held in Bristol from July 4-9, included papers on urethane foams and on modern aspects of polymers.

The Institution of the Rubber Industry announced the award of the Colwyn Medal to Dr E. Konrad, and the Hancock Medal to Mr C. B. Copeman.

Imperial Chemical Industries Ltd. announced plans for a £10m. expansion scheme to raise its nylon polymer capacity by 15,000 tons/year, including provision for a caprolactam plant

Mr C. C. Last, a founder-fellow of the Plastics Institute, died on July 2.

Overseas

An International Institute of Synthetic Rubber Producers was formed in New York during July by 15 United States and foreign synthetic rubber producers.

The contract for the erection of India's first synthetic rubber plant, near Bareilly, with technical assistance from Firestone Tire and Rubber Co., revealed that the 20,000 tons per year plant would cost 30m. dollars.

The Dow Chemical Co. of Canada announced that it was to erect a plant at Sarnia to produce polypropylene.

The formation of the American Rubber and Chemical Co. by Stauffer Chemical Co. and American Synthetic Rubber Co., to produce polydiene rubbers at a Louisville plant, initially polybutadiene, under licence from Phillips Chemical Co., was announced on July 16.

AUGUST

Home

The Council of the Plastics Institute announced that the first award of the Swinburne Medal would be to Professor G. Gee, of Manchester University, for his outstanding contributions to the advancement of polymer chemistry.

The Esso Petroleum Co. Ltd. announced plans during August for the construction of the first United Kingdom butyl rubber plant at their Fawley refinery. This plant, only the fifth of its kind in the world, will have an annual capacity of 30,000 tons, and cost about £4.3m. During August the International Synthetic Rubber Co. Ltd. reported a profit for 1959 of £936,073, leaving a credit balance of £323,131 after allowing for losses sustained during start-up.

Following the official opening on July 26 of the Maydown, Londonderry, works of the Du Pont Co. (U.K.) Ltd., the price of Maydown produced Neoprene W was reduced to 38½d./lb. from August 2. There was a general reduction of 3d./lb. in the price of basic grades of polystyrene with effect from August 1.

Negotiations for the acquisition by P. B. Cow Ltd. of the St. Helens Cable and Rubber Co. Ltd. from B.I.C.C. Ltd. were completed during August.

An exhibition, presented by Storeys of Lancaster, devoted entirely to the use of plastics in the home, was opened in London on August 22 by C. H. Glassey, President of the British Plastics Federation.

Overseas

The formation of a company to manufacture expanded plastics in Malta, Jablo Plastics Industries (Malta) Ltd., was announced.

A group of United States companies (Continental Oil Co., Cities Service Co., US Rubber Co., Witco Chemical Co., and Fisk Industrial Corporation) announced plans for a 74.5m. dollar petrochemical plant in Argentina, including facilities for the production of synthetic rubber, carbon black, and styrene.

In the United States a reduction in same rayon tyre cord prices was followed a week later by a reduction of 2-5cents/lb. in the price of nylon tyre cords.

SEPTEMBER

Home

A two-day conference on Butyl Rubber opened at the National College of Rubber Technology on September 22.

The International Synthetic Rubber Co. Ltd. released some details of their high-solids styrene-butadiene rubber latex plant at Hythe, which is scheduled to be producing at the rate of 7,000 tons/year by the end of 1960.

A range of rubber and plastics products were exhibited at the 21st SBAC Show which opened at Farnborough on September 5.

The British Association for the Advancement of Science Annual Meeting, held in Cardiff from September 5, included a number of papers on polymers among those read to the Chemistry Section.

Imperial Chemical Industries Ltd. announced that they had been licensed by Montecatini to produce polypropylene fibres.

Witco Chemical Co. Inc. and the US Rubber Co. announced the formation of a joint subsidiary, Sto-Chem, to produce synthetic rubber latices in a £1m., 8m. lb. capacity, plant in the United Kingdom.

Pay rates regulated by the NJIC for the rubber manufacturing industry were increased by at least 1¾d. per hour from September 11.

A symposium on the high temperature resistance and thermal degradation of polymers was held by the Plastics and Polymer Group, Society of Chemical Industry, in London, on September 21-23.

British Hydrocarbon Chemicals Ltd. announce plans to set up a £10m. manufacturing plant at Llandarcy, near Swansea.

Overseas

The Division of Rubber Chemistry of the American Chemical Society met in New York from September 14-16. The 10th Canadian High Polymer Forum was held in Montreal on September 8 and 9.

An International Conference on Natural Rubber Research, sponsored by the Rubber Research Institute of Malaya, was held in Kuala Lumpur from September 26 to October 1.

The 1959 survey of the American synthetic rubber producing industry, prepared by the Attorney General and published during September, noted that although the field is dominated by a small number of major producers the competitive aspects of the supply position are generally good.

At the first meeting of the International Institute of Synthetic Rubber Producers, held during September, T. C. Cubbage (Phillips Chemical Co.) was elected president, and Bancroft Henderson managing director.

It was announced that Dr H. A. Winkelmann was to be the 1961 Goodyear Medallist of the American Chemical Society. W. F. O'Neil, founder and Chairman of the General Tire and Rubber Co., died on September 4 at the age of 76. C. A. Bartle died on September 29, less than a year after his retirement from the Elastomer Chemicals Dept. of E. I. du Pont de Nemours and Co. Inc.

In the United States on September 1 the Food and Drug Administration issued a list of rubber compounds and ingredients used in food products which are to be exempt from the sanctions of the 1958 food additives law.

At the 15th meeting of the Inter-

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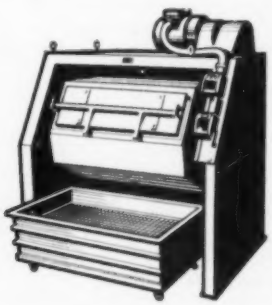

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Imperial Chemical Industries Ltd., London, S.W.1

national Rubber Study Group in Kuala Lumpur from September 19-23 estimates for the world natural and synthetic rubber consumption were prepared. Total rubber consumption in 1960 was estimated at 3,840,000 tons.

OCTOBER

Home

A three-day International Synthetic Rubber Symposium and Exhibition was opened at Church House, Westminster, on October 11 by Viscount Hailsham, under the chairmanship of G. E. Beharrell. At the symposium dinner it was announced by the sponsors, *Rubber and Plastics Age*, that an International Gold Medal for services to synthetic rubber was to be instituted.

The British Plastics Federation Conference at Scarborough from October 5-8 included a paper by H. C. Raine (I.C.I. Ltd.) on the value of research, especially co-operative research, to the plastics industry. Other lectures covered a variety of technical and commercial subjects.

The London Section of the Plastics Institute held a 'pocket' symposium on 'Extrusion' in London on October 25. The Man-Made Soling Association held a three-day convention from October 4-6 entitled 'Footwear Today.'

A senior management course was held by the British Rubber Manufacturers Employers' Association in Southport from October 24-28. On October 13 a short course on some aspects of the chemistry of plastics was held at the Welsh College of Advanced Technology.

Overseas

The Congress of the Deutsche Kautschuk Gesellschaft, held in Berlin from October 4-8, featured 62 lecturers from 13 countries, with a total attendance of nearly 1,000 delegates. The Carl Dietrich Harries plaque, for service to the rubber industry, was presented by Dr Fromandi to Prof. Dr Paul Baumann and Dr Hermann Holzrichter.

The International Plastics Exhibition, 'Macroplastic 1960,' opened in Utrecht on October 19.

Polymer Corporation plans to build a speciality rubber plant in France, and a butyl rubber plant in the United Kingdom, were disclosed in a speech by the Canadian Defence Production Minister.

Synthetic Rubber Development Co. of South Africa was formed by a consortium of rubber manufacturers active in South Africa, to investigate the technical and economic feasibility of the production of synthetic rubber in South Africa.

In Italy plans to expand the capacity of the ANIC synthetic rubber plant to a figure of 90,000 tons a year, by the end of 1960, were revealed. The new carbon black plant of Cabot Italiana was officially opened at Ravenna on October 19.

Montecatini, of Milan, announced that they had initiated proceedings against Shin Nippon Chisso, of Japan, for alleged infringement of polypropylene patents.

110 delegates and observers, representing 15 countries, attended the 10th meeting of the Plastics Committee (ISO/TC 61) of the International Standards Organization held during October in Prague.

Other meetings held in the United States included the 6th Joint Army/Navy/Air Force Conference on Elastomer Research and Development in Boston from October 18-20, and the Rubber and Plastics Division, American Society of Mechanical Engineers, meeting in Erie, Pa., from October 9-11.

The first United States commercial production facilities for cis-polyisoprene were expanded to full production rate on October 14. The plant, at the Shell Chemical Co. facilities at Torrance, Calif., has an annual capacity of 40m. lb.

G. P. Villa was elected president of the US Rubber Co. on October 19 in succession to J. W. McGovern who retired after 40 years' service to the company.

NOVEMBER

Home

The Executive Committee of the Research Association of British Rubber Manufacturers met in London on November 15 to approve the adoption of a new title 'The Rubber and Plastics Research Association of Great Britain,' and were able to announce that the wider interests of the Research Association, apparent from the change in name, were supported by a considerable proportion of the membership of the British Plastics Federation.

The annual luncheon of the London Section of the Plastics Institute was held on November 3. A Health Conference organized by the Rubber Manufacturers Employers Association was held in London from November 17-18, under the Presidency of Mr G. E. Beharrell.

The Plastics Institute held a symposium on November 29 in London to coincide with the opening of the Corrosion and Metal Finishing Exhibition.

The High Polymer Research Group was founded under the chairmanship of Sir Harry Melville, for the purpose of organizing study conferences with participation by invitation only, to encourage free exchange of ideas between workers in the field.

Forth Chemicals Ltd. announced on November 14 that they plan to build a 50,000 tons/year styrene plant adjacent to the British Petroleum refinery at Llandarcy. A new factory of Vinatex Ltd., at Havant, Hampshire, for the production of PVC pastes and powders came into production early in November.

The death occurred on November 14 of Mr Fordyce Jones, at the age of 76, who retired in 1951 as chairman of the Reliance Rubber Co. after a lifetime of service to the rubber industry.

At the annual dinner given by the President of the Federation of British Rubber and Allied Manufacturers, in London on November 24, the guests were welcomed by Mr H. G. W. Chichester-Miles. The Foundation Dinner of the Humberside Section of the Institution of the Rubber Industry was preceded by a lecture 'The Trend of Polymer Developments in the Rubber Industry,' by Dr W. C. Wake and Dr L. Mullins.

The 2nd International Reinforced Plastics Conference of the British Plastics Federation was held in London from November 29 to December 2. Almost 100 of the 640 delegates were from overseas.

The I.C.I. polypropylene plant at Wilton, with an annual capacity of 10,000 tons, was announced as on stream on November 25.

Some short time working was introduced towards the end of November at the Speke factory of the Dunlop Rubber Co. Ltd.

The 17th Public Works and Municipal Services Congress and Exhibition at Olympia during November featured several novel applications of rubber and plastics materials.

Overseas

At a meeting in Akron on November 18 a photograph of H. N. Ridley was added to the Akron University Rubber Science Hall of Fame.

Twenty-five technical papers were presented to the Ninth Annual Wire and Cable Symposium, which opened at Astbury Park, N.J., on November 30.

A plastics conference 'Plastteknik 1960,' under the auspices of the Svenska Plastföreningen, was held in Stockholm from November 21-24.

It was revealed during November that Nippon Synthetic Rubber Co. had suspended production at its Yokkaichi SBR plant because of the accumulated stocks arising from competition with imported supplies.

In India the cornerstone of a Goodyear tyre manufacturing plant was laid at a site near New Delhi during November. The National Rubber Manufacturers Ltd., of Calcutta, announced that they are to collaborate with Technoexport, Prague, to establish a new tyre and tube manufacturing factory in India.

In the United States polyisoprene prices were reduced from 32 cents/lb. to 27 cents/lb. following some decline in natural rubber prices.

Firestone Synthetic Fibres Co. started production of nylon filament for tyre cord at its Hopewell, Va., plant.

Drawing Office Exhibition

The first national Drawing Office Equipment and Materials Exhibition in the UK is to be held in the Royal Horticultural Society's New Hall, Westminster, from June 5-8 1961.

Most requirements for the drawing office in all branches of industry will be on display during the exhibition and both British and overseas equipment will be on show.

Cotton Man Praises Rubber

RECORD ATTENDANCE AT IRI MANCHESTER DINNER

MORE than 500 people were present at the Institution of the Rubber Industry Manchester section's annual dinner and dance, which was held at Belle Vue, Manchester, last week. This is the first time the attendance at this function has topped the 500 mark.

Maldwyn Jones (I.C.I.) and Mrs Jones being received at the IRI Manchester dinner by *(left to right)* **Sir Raymond Streat (chairman of council, University of Manchester), Mrs Buist and J. M. Buist (I.C.I.—chairman of the IRI Manchester section)**

The Manchester section heard Sir Raymond Streat, chairman of council, University of Manchester, and a former chairman of the Cotton Board, praise both rubber — which he called a 'fantastically useful substance' — and rubber manufacturers. Proposing the toast of the Manchester section he said that rubber was hard and yet soft — and in this respect it was almost human. It was stable yet flexible; it could be made like textiles and yet remained impervious to water.

How many engineers realized, Sir Raymond went on, how lucky they had been that pneumatic tyres had preceded by ten years or so the invention of the internal combustion engine?

Sir Raymond congratulated the rubber technologists who had made so many conveniences of modern life possible, but he finished on a warning note.

'You have done very well,' he said, 'but past performance is no guarantee of future success. You cannot rest on your oars. Like a swan you may appear to have a steady progress on top of the water, but you must paddle furiously underneath.'

The chairman of the Manchester section, J. M. Buist, responded, and said that he was sorry that Sir John Dean, president of the IRI, could not attend as he was recovering from a serious operation. He welcomed Maldwyn Jones and C. H. Birkett, IRI vice-presidents, C. B. Copeman, the 1960 Hancock medallist and G. E. Holmes-Siedle, secretary of the IRI.

The toast of 'The Ladies,' was proposed by B. J. Hadgood, and Mrs J. M. Buist responded. Gifts were presented to the ladies and the Manchester section acknowledged donations from the following firms:

Anchor Chemical; Boro Rubber (1912); British Geon; British Recovered Rubber and Chemical; Dunlop; Ferguson Shiers; P. Frankenstein and Sons; Futura Rubber; Goodyear Tyre and Rubber (GB); Greengate and Irwell; Hubron Rubber Chemicals; I.C.I.; International Synthetic Rubber; Lindsay and Williams; Monsanto Chemicals; Newcol; New Consolidated Mines of Cornwall; Perrite; Phillips Rubbers (Mnf.); Polymer (UK); Precision Rubber Products (Denton); Redfern's Rubber Works; Rubber Latex; Rubber Regenerating; Shell Chemical; Sutcliffe Moulded Rubber; F. Thompson and Co.; Travis Industries; Vitafoam; Volcrepe, and Witco Chemical.

Part of the R. W. Greef party at the IRI Manchester dinner. Nearest the camera are Mr and Mrs N. B. Wilden; opposite them are Mr and Mrs R. E. Lowthian

New Goodyear Giant

The latest addition to Goodyear (GB) Ltd.'s giant tyre range is the Unisteel type 'G,' a development of the Unisteel Hi-Miler, which has been developed for on- and off-the-road delivery work.

The tread, sidewalls and carcass of the new tyre are built to withstand the bruising, shock and impact of operating over rough ground conditions, unmade roads, sand and gravel. It has a belted type of construction — a single radial ply of steel cables 'braced' by multiple steel cable breaker strips in the tread area.

Alan Potter has been appointed general sales manager of Lansing Bagnall Ltd., the materials handling equipment manufacturers. Edgar H. Wheeler has been made export sales manager, and Charles A. Barr manager of the technical services division.

MEN and MATTERS

A Review of People and Events

by Peter Richards

IN 1970 will there be more female than male rubber technologists? One might have thought so from the Institution of the Rubber Industry London Section's recent Christmas lecture to schoolchildren, because at the end of an absorbing hour-and-a-quarter the vast majority of the questions came from the girls!

An invited audience of about 500 children from London schools was addressed by Dr L. Mullins, deputy director of research at the Natural Rubber Producers' Research Association. By demonstrations and short sequences of film he held the attention of the teenagers as he took them through the various steps of rubber processing. A feature of the lecture was the clever introduction of fragments of science designed to link on to their existing knowledge.

After the lecture the children looked at an exhibition which illustrated the applications of rubber in a wide field. The lively interest they showed makes one wonder why this sort of thing is not done more often. Why not repeat this in other areas — and perhaps even organize a travelling exhibition to schools?

Good Companions

The Good Companions Hotel, Slough, was an appropriate venue for a dinner held recently by Veedip Ltd. — appropriate because the dinner marked the presentation of long service awards. Awards were made to 19 good companions, some of whom joined the company when it was formed in 1926.

S. D. Sutton, one of the founders of Veedip and director and general manager, reviewed the growth of the company up to its present position as a member of the British Insulated Callender's Cables group. He paid tribute to the 19 men and women who received awards of £25 for 25 and 20 years' service respectively. Mr Sutton said that the future held good prospects for continued expansion and added that he hoped that many of those at the dinner would be present at the 40 years' celebration.

A Flavour of Rowland Hill

Post offices are not very cheerful places. We buy our stamps and Premium Bonds (if we are fortunate enough not to have 'Position Closed' clicked into the grille in front of us) in a solid brown atmosphere.

It is good to see, therefore, that in future the Post Office is to encourage architects to use brighter colour schemes. 'We don't see why we should stick to dingy browns and greens,' it says. 'We want to make post offices brighter and pleasanter.'

But, according to the information I have, architects will be urged to use more cheerful colours of *linoleum* for post office counter tops and writing shelves when they have to be renovated. Linoleum? Linoleum on counter tops seems to carry a faint flavour of Rowland Hill. I should have thought that this is obviously a case for decorative laminates — and a number of designs immediately suggest themselves. I hope that any sales people in laminated plastics reading this are now reaching for their brief cases and turning their cars in the direction of St. Paul's.

Charging the glasses for a toast at the Veedip dinner. (*Left to right*) **S. D. Sutton, director and general manager of Veedip, Mrs Sutton, Mrs F. Maywood and S. Jones** (*See Good Companions*)

C. E. M. Coubrough

C. E. M. Coubrough, whose retirement was announced recently (*KJIP*, Dec. 17, 1027), played a major part in shaping the structure of British Xylonite Ltd., whose managing director he was for 22 years. He negotiated the purchase of Cascelloid Ltd., implemented the formation of Halex and BX Plastics Ltd., and with Ilford Ltd., was responsible for the formation of Bexford Ltd.

During the last war he was on the council and executive committee of the British Plastics Federation, and was chairman of the committee which reorganized the Federation.

He was also a member of the plastics advisory committee of the Ministry of Supply, plastics representative of the Eastern Region Labour Board, and a member of the plastics committee of the British Standards Institution. For several years he was also chairman of the Federation of British Industry.

Mr Coubrough, who was awarded the Military Cross and Bar in the first war, joined British Xylonite in 1920, becoming a director in 1925. It is good to know that the company will still have the benefit of his wide and long experience: although he has retired from executive duties he remains on the board of British Xylonite as deputy chairman.

Ekco-Pye Moves

Following the Ekco-Pye merger, N. A. Twemlow, a director of Pye Ltd., has been appointed to the board of E. K. Cole Ltd. W. M.

York, commercial director of E. K. Cole, becomes a director of Pye.

Mr Twemlow is a director of a number of companies in the Pye group; he has previously been connected with Ekco, with whom he spent a short time before joining Pye in 1934.

Mr York has been with Ekco since 1932. He is a director of a number of the companies which form the Ekco group and a director of Radio Industry Exhibitions Ltd.

Geon's New Salesmen

As part of its expansion programme, British Geon Ltd. has made several new sales appointments.

P. Abel has been appointed representative for Geon PVC compounds, and G. A. Wilson has been appointed representative for Geon PVC resins. Mr Abel and Mr Wilson will cover the Southern area. D. Hughes and J. Leach have been appointed representatives for Geon PVC resins in the Northern area.

Hubron Helps Spastics

Hubron Rubber Chemicals Ltd. deserves a pat on the back: the firm recently sponsored a highly successful dance in Failsworth, Manchester, which raised £155 for the ambulance fund of the Oldham and District Spastics Society. J. H. Brown, a director of Hubron, presented the cheque to the chairman of the Spastics Society.

Thanks to the enthusiasm and hard work of Mrs A. Dollman and her committee, I understand that the venture grew from quite a small beginning to become a really big occasion. Prizes for raffles and spot dances were generously given by a number of firms in the rubber and footwear industries, and more than 500 people attended.

Variety stars Jimmy Logan and Tommy Cooper presented the prizes.

Kayser, Ellison

L. A. K. Halcomb has retired from the position of managing director of Kayser, Ellison and Co. Ltd., but he remains chairman of the company.

Kayser's new managing director is J. R. A. Bull, who is chairman and managing director of the parent company, Sanderson Kayser Ltd.

Rubber Students' Party

Students at the National College of Rubber Technology and Northern Polytechnic raised £90 to provide a party for sick children at the Royal Northern Hospital.

Since the British Chemical Industry Safety Council awarded a 'No Accident' pennant to Bakelite's Warerite factory at Ware, Herts., the factory has completed a further accident-free six months. In this picture A. Lloyd (production director) congratulates T. W. Page (Ware works manager) and E. Hudson (Bakelite safety officer). Holding the pennant is E. J. Radburn (Ware safety officer) with J. H. Darby (works engineer) and members of the engineering staff

C. S. E. Lea has been appointed manager, hose sales, by William Warne Ltd., of Barking. After retiring from the Royal Navy at the end of the last war Mr Lea spent 10 years with Goodyear and three with North British

Question Corner — 153

(Second Series)

478. What is the Monsanto plasticizer absorption time test? Triphenyl phosphate is used as a plasticizer. Give some details.

(Answer next week)

Answer to Question Corner — 152

477. Polyisocyanates, especially the diisocyanates, are used in the commercial production of polyurethanes.

There are many methods of preparing the isocyanates but practically all the present commercial methods use the basic method evolved by Henschel in 1884.

Essentially, isocyanates are prepared by the reaction of phosgene with an amine or one of its salts, and continuous processes are now used. Toluene diisocyanate is one of the most important commercial diisocyanates.

One method involves charging a heated reaction vessel, equipped with an agitator and condenser, with chlorinated polyphenyl. When the temperature has been adjusted to 260°C. a solution of 2,4-toluene diamine in o-dichlorobenzene is fed into this. The mass is agitated and simultaneously phosgene is added to the reaction mass. Since the boiling point of the toluene diisocyanate is 250°C., *i.e.* less than the reaction temperature, it distils out of the reaction mass as it forms with the o-dichlorobenzene. The vapours are collected and condensed. The hydrogen chloride gas formed passes over with the diisocyanate and the solvent, and is removed through a reflux condenser. The diisocyanate is recovered from the solution by vacuum distillation.

(Another question next week)

Polly Ester Says . . .

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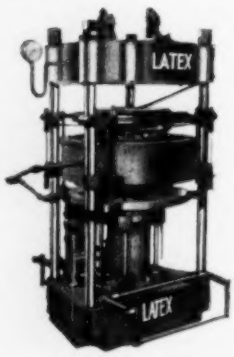

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Rubber Statistics

MALAYA — WEST GERMANY

IMPORTS of rubber into Singapore and Malaya during December 1960 totalled 36,885 tons, as shown by final documents received, according to preliminary figures issued by the Chief Statistician in Singapore.

This figure includes 14,081 tons imported on provisional permits in previous months, and excludes 17,151 tons imported during the month for which final documents have not yet been received.

The comparative figures for November were 28,638, 16,056 and 10,755 tons respectively.

Malayan rubber exports in December 1960 amounted to 99,476 tons against 93,824 in November, according to preliminary figures issued by the Chief Statistician in Singapore.

This brings the export total for 1960 to 1,077,783 tons compared with 1,202,747 for 1959.

For the past four years, Malavan rubber exports have topped the million mark annually.

West Germany

West Germany's rubber tyre production in November 1960 reached a total of 20,333 tons against 20,277 tons in October, according to the Federal Bureau of Statistics.

Production in the first 11 months of last year amounted to 212,942 tons, and this compares with 184,704 tons (without the Saar Region) in the January to November period of 1959. This is a reflection of the extraordinarily high production of motor vehicles in West Germany.

Output of other hard and soft rubber goods during November increased to 24,614 tons from 24,072 tons in the previous month. In the first 11 months of 1960, it amounted to 259,031 tons against 218,127 tons in the January to November period of 1959.

Imports of natural rubber and rubber sole crepe during the first 10 months of 1960 totalled 118,373 tons, including 69,111 tons from Malaya, 9,953 tons from Nigeria, 9,850 tons from Thailand, 8,117 tons from South Vietnam, 7,060 tons from Indonesia and 5,962 tons from Ceylon. The Congo sent 239 tons of rubber during October, bringing up total imports in the first 10 months of 1960 to 2,771 tons.

Imports of synthetic rubber during the first 10 months of last year amounted to 41,445 tons, including 28,003 tons from the United States, 6,263 tons from Canada, 2,819 tons from Italy and 2,453 tons from France.

Crop Returns

Unless otherwise indicated the figures quoted, to the nearest thousand lb., represent crop returns for the month stated and for the number of months of the planting company's financial year to date. Corresponding figures are given in parentheses.

RUBBER ESTATE AGENCY

December

Kuala Lumpur-Kepong Amalgamated Group.—Malayan Crop: 3,218 (3,147). 3 mths—9,261 (9,371). Sumatra Crop: 384 (385). 3 mths—1,086 (1,162).

The above figures show the total crops of the following companies: Kuala Lumpur-Kepong, Kepong, Buntar, Tanjong Malim, Jeram, Tamiang, Sungei Kahang, Caledonian, Glen Muar and Kuala Kangsar. They show the position from October 1 1960, the start of the financial year of the Kuala Lumpur-Kepong Company. The accounting periods of the new subsidiaries have not yet been finally determined, but will certainly not all date from October 1 1960, hence the figures above are given only to show the present crop trend of the group as a whole.

Bandar Sumatra.—95 (101). 5 mths—465 (501).
Batu Kawan.—71 (78). 4 mths—272 (285).
Kepitigalla.—101 (73). 9 mths—568 (508).
Langkat Sumatra.—80 (83). 12 mths—936 (893).
Sungei Bahru.—160 (158). 6 mths—871 (813).
Tambira.—123 (135). 6 mths—674 (708).
Amalgamated Rubber.—51 (40). 12 mths—434 (393).
Java Rubber.—81 (74). 12 mths.—907 (877).
Soember Aioe.—19 (17). 3 mths—54 (40).
Sennah.—167 (142). 12 mths—1,665 (1,658).

Book Reviews

GUIDE TO THE 1952 MILL REPORT.—Published by the National Joint Industrial Council for the Rubber Manufacturing Industry. (65 pages.)

The name which springs to most minds on the mention of safety in connexion with rubber processing machinery is probably that of R. W. Lunn, C.B.E., and it is therefore fitting that the foreword to this guide should have been written by him in his capacity as Chairman of the Accident Prevention Committee of the NJIC.

One of the purposes of this guide is to deal with the comfort of men working on 'safe mills' as some machinery users have arranged their mills so that, although they are safe, the operators cannot use them in comfort.

'There is much,' savs Mr Lunn, 'to be content with and little to regret in the reactions of the industry to our solution of the mill problem. There are still some misunderstandings and misconceptions in spite of the passing of ten years. This guide will probably make the adjustments easily possible.'

If the ease with which the guide may be read gives any indication of the use to be made of it then Mr Lunn's hopes are likely to be justified, as it is profusely and amusingly illustrated and very lucidly explains how mills may be adjusted for safe and comfortable working.

PLASTICS INTERNATIONAL.—Published January 18 by Temple Press Ltd. (Size 11¾in. x 8¾in., 488 pages. Price 65s. 6d. including postage.)

This is the first edition of Plastics International and it has been prepared with two main objectives in mind. Firstly, to satisfy the need for a reference work on plastics machinery and materials dealing with these subjects on an international basis. Since the plastics industries of the leading producer countries are major industries in their own right, a book written on a purely national basis is no longer sufficient.

The second objective is to help bridge the gap between the plastics industry and its customers. More and more industries are using plastics and the need for general information in a readily accessible and understandable form is growing rapidly.

The directory is divided into six main sections dealing with main machinery, ancillary machinery, main materials, ancillary materials, UK moulders and fabricators, and general information. The first section commences with a review of processing techniques primarily designed for consumer industries who are not, judging from this review, expected to have more than a passing acquaintance with the methods in common use for processing plastics. This is followed by an analysis of the principal categories of machinery sub-divided by countries and arranged in alphabetical order by companies. The main materials section is introduced by an article dealing with the selection of materials for particular applications. This is also directed at the consumer industries, gives useful information clearly and concisely, mostly in tabular form and is followed by a review of standards and specifications for plastics materials which provides an easily used source of information. As with the machinery sections the materials are arranged in types by countries and other information includes engineering data, details of federations and research institutes and a list of books and journals likely to be of help to the plastics user.

The work involved in compiling a volume of this kind is no mean task and has taken almost two years. Those concerned are to be congratulated on their efforts in producing a book which should prove of value as a reference work to all connected with the plastics industry either directly as manufacturers or fabricators or more indirectly as users.

. Copies may be ordered through the Books Department, RUBBER JOURNAL AND INTERNATIONAL PLASTICS, Maclaren House, 131 Great Suffolk Street, London, S.E.1.

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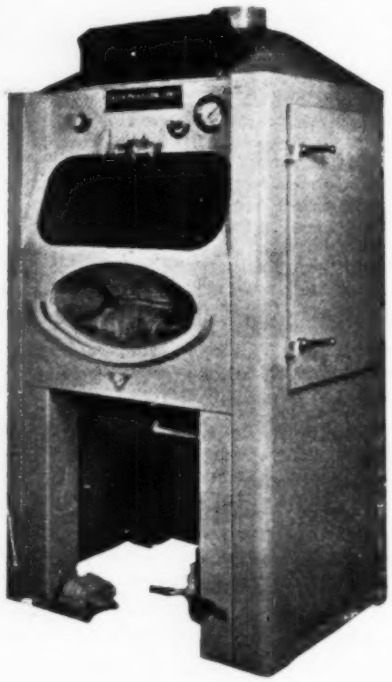

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RL53

Don't forget the INTERNATIONAL CARPET, LINOLEUM and FLOOR COVERINGS FAIR and Carpet Production Exhibition EARLS COURT London 27 FEB 3 MAR 1961

STAND NO. P28

PATENT SPECIFICATIONS

The following information is prepared from published Patent Specifications by permission of the Controller of H.M. Stationery Office. The full Specifications can be obtained from the Patent Office, 25 Southampton Buildings, W.C.2, at 3s. 6d. per copy (including postage).

Printers Rubber Blanket

No. 854,119. Frederik Johannes Eckhout. Application and Filed, September 1958. Application in Netherlands, May 27 1958. Published, November 16 1960.

The surface of a printers offset rubber blanket is treated with a preparation which contains as its essential components a polyester diisocyanate or polyisocyanate, a cellulose ester and an organic solvent. The blanket is then treated at elevated temperature. This procedure can be repeated to produce thicker layers on the surface which absorb little or no water, and give off all the ink to the paper.

High Impact Polystyrene

No. 854,238. Styrene Products Ltd. Application and Filed, June 19 1959. Published, November 16 1960.

A thermoplastic composition comprising polyvinyl-aromatic compounds with improved impact properties is prepared by polymerization of a solution containing up to 25% of a natural or synthetic rubber in a monovinyl-aromatic compound under bulk polymerization conditions. An intermediate polymer is formed which has less than 50% solids content and this is then polymerized further under aqueous emulsion conditions, or under aqueous suspension conditions using a polyvinyl alcohol suspension stabilizer.

Olefin Tripolymers

No. 854,274. Esso Research and Engineering Co. Application and Filed, August 25 1959. Application in USA, November 12 1958. Published, November 16 1960.

Copolymers of cyclodienes and isobutylene have been prepared which have good ozone resistance and physical properties. Disadvantages of these materials are (a) formation of gel or unwanted cross-linked copolymers and (b) difficulty in reaction control, leading to extreme reactor fouling.

If the copolymerization is carried out in the presence of small proportions of isoprene these disadvantages are not apparent, and the tripolymers produced by the reaction can be vulcanized to form vulcanizates with outstanding physical properties and extreme ozone resistance.

The cyclodienes utilized are conjugated C_5 and C_6 cyclodienes, preferably cyclopentadiene, and polymerization is carried out using a Friedel-Crafts catalyst. The polymer can be plasticized by hot milling and can be used in small proportions (of the order of 1phr) to reduce the Mooney viscosity of butyl rubbers by milling the two together at elevated temperatures above 100°C.

Extruded Foam Polystyrene

No. 854,568. Koppers Co. Inc. Application and Filed, June 12 1959. Application in USA, December 17 1958. Published, November 23 1960.

A method is described for extruding expandable polystyrene to obtain a tube of minimum wall thickness of about 0.005in. or film with a minimum thickness of about 0.005in. The composition of this expandable polystyrene is of polystyrene particles having integrated therein from 4½ to 9% of an aliphatic hydrocarbon boiling approximately in the range 30—90°C. These hydrocarbon containing particles are homogeneously admixed with a carbon dioxide liberating agent such as sodium bicarbonate and an acid, preferably organic. Extrusion conditions for this mixture are somewhat different to those used for conventional or solid polystyrene. The cylinder temperatures may be from 150-260°C., the die temperature from 225-290°C. and the extrusion rate can be varied according to the machine limits and the product produced.

Heat Treated Rubbers

No. 854,613. Dunlop Rubber Co. Ltd. Application, April 28 1956. Filed, March 21 1957. Published, November 23 1960.

A process for the production of rubber articles with improved physical properties is described. A vulcanized rubber product is made by dispersing carbon black, formaldehyde and a condensation catalyst in rubber in the absence of extraneous formaldehyde reactive materials and subjecting the dispersion to heat treatment without vulcanizing it. The heat treatment is preferably carried out with simultaneous mechanical working on a mill or in a Banbury mixer but the effect can be obtained by heating without working. The composition so formed can be shaped and vulcanized by known methods. In view of the volatility of formaldehyde, this may be added in the form of a polymer or compound that liberates formaldehyde when heated, such as paraformaldehyde, metaformaldehyde or hexamethylene tetramine. With hexamethylene tetramine the ammonia liberated acts as the condensation catalyst and no other is needed.

Crystalline Butadiene Polymers

No. 854,615. Montecatini. Application and Filed, April 12 1957. Application in Italy, April 13 1956. Published, November 23 1960.

In Patent Specification No. 835,752 the production of a linear crystalline polybutadiene having a prevailing 1,2 enchainment is described which is syndiotactic. By polymerizing butadiene under the conditions described in the specification, it is possible to produce at will two different types of crystalline butadiene polymers both prevailingly 1,2 but which may be shown by X-ray analysis to possess different steric structures, one being the syndiotactic polymer described in the specification referred to above and the other being a new polymer of isotactic structure. This isotactic polymer has more than 90% of its bonds of the vinyl type and is highly crystalline at temperatures below 120°C.

CORRESPONDENCE

The Organization Man

Sir,

One cannot let F. C. Jennings' comments on 'The Organization Man' pass unremarked (*RJIP*, Dec. 31).

The book, says Mr Jennings, 'proves too much' (*sic*) yet Mr Jennings is not impressed by Mr Whyte's arguments and does not know what the book is warning us against, and *then* goes on to say '. . . if dedication to and absorption in the job could be seen as the vice it really is.'

This is surely a fantastic statement for anyone to make, and the inference that it is one of the themes of 'The Organization Man' is untenable.

One of Whyte's main arguments is that dedication and absorption in the job should not be allowed to be adulterated, diluted or sacrificed to the interests of the group. If the dedicated and brilliant individual is to be stifled, then ultimately we shall all perish with him.

Yours faithfully

A. B. EASON.

Wolverhampton.

Polythene film has helped to protect workers on this Burton building site. As soon as the concrete foundations had been put in, the scaffold tubes were erected, and taken a little higher than usual. Using more tubes to form a span roof, the whole site was covered with Fablon 500-gauge polythene. The polythene protection has more than paid for itself in time saved

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The writers have drawn on their experience in the Silicones and Research Departments of I.C.I.

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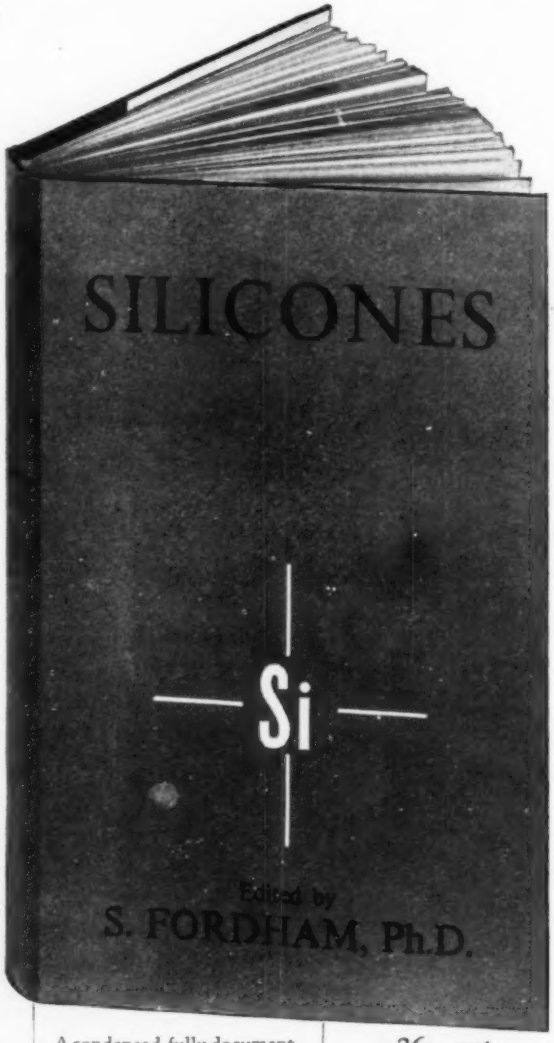

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NEWNES

Rubber and Plastics Stock Market

A REVIEW OF PRICES AND TRENDS

THE stock market, like the world we live in, is full of surprises. At any rate that is the conclusion this author arrives at after looking back over the past few weeks of the New Year. Contrary to all the forecasts shares have made slow but steady progress. An early setback for those financial experts whose crystal gazing efforts for 1961 said that prices would remain submerged in a quagmire of uncertainty at least until the late summer or autumn. As it has turned out most people have ignored all the bad news from both the home and international fronts. Despite the fact that the business outlook remains clouded with doubts virtually no one is a seller.

There has even been a lot of talk about the credit squeeze being eased. And support to this view, in some people's minds, was given last week by the Chancellor of the Exchequer. He told a TUC meeting that he was 'considering the easing of the credit restrictions.' A long way, I feel, from actually taking any definite action, however. Even if he does ease the brakes a little in this direction, the effects will take some time to be felt. My advice at this juncture is to let the professionals gamble if they want to. The small investor still needs to be careful at the moment. There are still a number of other major problems to be solved yet.

For instance, there is the giant resale of all the Government's holdings of preference and debenture stocks which they still have in the steel companies. These are estimated to be worth in the region of £80m. — half of which is expected to be absorbed by the big institutions.

Meantime, of course, there are plenty of companies who have money problems. Latest to join the queue for raising capital is BTR INDUSTRIES, who announced recently that arrangements for a £1,500,000 debenture issue are in hand. The stock is to be placed at £98 10s.%, will carry an interest coupon of 6½%, and dates of 1981-86. In his review with the accounts, the chairman, Sir Walter Worboys, told shareholders that many of the group's plants are working to capacity and must be extended as order books are heavy and deliveries over-long. In addition new plants will be required for improved and new products. The firm's balance sheet shows overdrafts at over the £1m. mark and the directors estimate that for the next couple of years yearly capital spending will be at or slightly above £1m. Increased trading will call for more working capital. The outlook for most of the products produced by the company is considered encouraging. Given the continuance of a reasonable level of industrial activity the chairman antici-

Continued on page 112

Share Price Movements

Par Value	Company	1960-61 High	Low	Dec. 31	Latest
£1	A.E. Ind. Ord.	67/–	39/–	40/–	42/3
5/-	Albright & W. Ord.	34/3	25/–	25/3	25/3
£1	„ „ „ 5% Pref.	17/3	15/3	15/6	15/6
5/-	Anchor Chemical Ord.	18/7½	14/9	15/9	15/9
5/-	Andersons Rub. Ord.	—	—	3/9	3/9
£1	Angus Geo. Ord.	60/6	34/9	58/6	59/–
5/-	Ault & Wiborg Ord.	28/–	20/–	27/3	26/9
£1	Avon India Rubber Ord.	46/6	30/–	30/7½	30/–
£1	„ „ „ 6% Pref.	20/–	17/6	18/9	18/9
10/-	Bakelite Ord.	62/6	39/9	43/–	42/6
£1	„ 6% Pref.	19/3	16/9	18/–	18/–
£1	Baker Perkins Ord.	46/6	40/–	43/1½	42/–
4/-	Bank Bdg. Rubber Ord.	4/3	1/9	2/–	2/–
4/-	Bettix	—	—	8/3	7/9
4/-	Brammer H. Ord.	18/6	16/3	16/10½	16/3
10/-	Bridge, David Ord.	66/6	48/–	50/–	50/–
5/-	Bright, John Ord.	18/6	14/3	14/4½	14/9
5/-	Brit. Blting. & Asb. Ord.	—	—	18/–	17/6
£1	„ „ „ Pref.	—	—	15/9	15/9
2/-	Brit. Ind. Plas. Ord.	12/1½	5/3	8/9	8/–
2/-	„ 10% (tax free) Pref.	4/9	4/3	4/9	4/9
£1	British Xylonite Ord.	67/–	50/6	63/6	65/–
£1	„ „ 5% Pref.	18/9	14/–	15/–	15/–
£1	BICC Ord.	61/3	47/6	49/3	55/3
5/-	BTR Ind. Ord.	17/9	9/9	15/–	15/–
£1	„ „ 7½% Pref.	24/3	21/3	22/3	22/3
5/-	Cole, E. K.	31/9	18/–	20/–	21/3
£1	Courtaulds Ord.	59/4½	42/–	43/9	43/–
£1	„ 5% 1st Pref.	17/9	15/–	15/6	15/–
£1	„ 6% 2nd Pref.	21/–	18/–	18/6	18/–
4/-	Cow, P. B. Ord.	9/9	6/9	8/–	8/–
£1	„ „ 5% Pref.	15/6	14/–	14/–	14/–
1/-	Dannimac Mfg. Ord.	14/6	9/–	12/9	12/–
10/-	De La Rue Ord.	78/6	47/9	58/1½	56/6
£1	„ „ „ 3½% Pref.	12/–	10/–	10/–	10/–
10/-	Distillers Co. Ord.	38/3	27/9	39/6	31/–xc
£1	„ „ 6% Pref.	22/–	19/6	20/–	20/–
£100	„ 5% Conv. Loan	£96	£93½	£93½	£93½
£100	„ 5½% Unsec. Loan	£97	£85	£85½	£85
10/-	Dunlop Rubber Ord.	30/6	19/9	22/–	22/–
£1	„ „ 5½% Pref.	19/–	15/6	16/–	15/6
£100	„ 3½% 1st Debs.	£78	£68	£68	£68
£100	„ 4½% 2nd Debs.	£87	£77½	£79½	£79½
£1	Eng. Elect. Ord.	53/6	30/9	34/9	33/6
4/-	Ebonite Cont. Ord.	14/3	7/9	8/4½	8/–
£1	English China Clays Ord.	95/–	69/–	84/6	87/6
£1	Goodyear Tyre 4% Pref.	12/9	10/9	11/6	11/6
5/-	Greeff Chem. Ord.	35/–	23/–	23/–	23/–

Par Value	Company	1960-61 High	Low	Dec. 31	Latest
10/-	Greeff Chem. 5½% Pref.	9/–	7/9	8/–	7/9
5/-	Hackbridge Hldg.	8/7½	5/3	6/–	5/6
4/-	Greengate & Irwell Ord.	6/6	5/3	6/–	5/9
£1	Harrisons & Crosfield Dd.	64/–	48/6	49/–	48/6
1/-	Hunt & Moscrop Ord.	2/9	1/4½	1/7½	1/7½
£1	Imp. Chem. Ord.	75/3	54/3	64/9	64/3
£1	„ „ 5% Pref.	18/–	15/6	15/9	15/6
£100	„ 4½% Unsec. Loan	£89½	£80½	£81½	£81½
£100	„ 5½% Conv. Loan	£212½	£90xc	£92½	£92½
1/-	Kleemann (O. & M.) Ord.	11/6	8/3	9/–	9/–
£1	„ „ 6½% Pref.	19/–	17/–	17/–	17/–
5/-	Laporte Ind. Ord.	33/6	21/3	26/3	26/–
£1	„ „ 7½% Pref.	24/3	23/–	23/3	23/–
£1	Leyland & Birm. Rubber Ord.	63/–	46/3	48/–	47/9
£1	„ „ „ 6% Pref.	19/–	17/6	18/1½	18/1½
2/-	London Rubber	14/9	11/–	14/6	14/9
£1	„ 6% Red. Cum. Pref.	20/–	18/–	18/6	18/9
£1	McKechnie Bros. Ord.	71/6	57/–	59/–	57/6
£1	„ „ 'A' Ord.	69/3	55/–	55/–	55/–
£1	„ „ 6% Cum. Pref.	18/–	16/–	17/–	17/–
5/-	Monsanto Chem. Ord.	31/–	23/–	25/6	25/6
£1	„ „ 3½% Pref.	12/9	12/–	12/–	12/–
£100	„ „ 6% Debs.	£103½	£97½	£98	£98
5/-	Miles (H.G.) Holdgs. Ord.	11/3	8/1½	8/1½	8/1½
£1	North British Rubber	21/3	16/–	16/6	16/–
5/-	Northwestern Rubber	13/–	9/–	13/–	13/–
5/-	Plastic Enginrs. Ord.	30/–	20/–	28/–	28/9
5/-	Redfern Holdings Ord.	5/9	3/1½	3/4½	3/6
2/-	RFD Ltd. Ord.	6/6	3/4½	4/–	4/9
£1	„ „ 5½% Pref.	14/6	12/9	13/9	13/9
2/-	Rubber Imp. Ord.	7/9	3/1½	3/6	3/6
2/-	„ „ 'A' Ord.	7/–	3/–	3/3	3/3
£1	„ „ 5% 1st Pref.	15/–	11/3	12/3	12/3
5/-	Rubber Reg. Ord.	19/3	16/9	16/9	18/–
4/-	Shaw Francis Ord.	27/6	17/3	19/–	19/–
2/-	Silentbloc Ord.	13/3	8/6	8/6	8/6
5/-	Storey Bros.	41/9	28/3	35/–	36/–
2/-	Sussex Rubber Ord.	2/3	1/3	2/–	2/–
5/-	Sutcliffe Speak Ord.	15/9	11/–	14/–	14/–
£1	Turner & Newall Ord.	60/10½	48/3	55/–	58/9
£1	„ „ „ 7% Pref.	25/–	21/3	21/10½	21/3
5/-	Universal Asbestos Ord.	50/–	24/–	24/3	24/3
5/-	Viscose Dev. Ord.	16/6	14/9	16/–	15/–
5/-	Warne W. (Holdgs.) Ord.	18/9	14/9	15/–	15/9

Rubber Markets

LONDON

The general tendency continued downwards, in keeping with cheaper offers from the East. Minor rallies were short-lived. Apart from some fairly extensive switching from near to distant positions, the Terminal Market was dull, with business largely technical. Dealers showed interest in afloat and forward cif parcels, but factory demand was very selective.

Latest prices are as follows:

No. 1 RSS Spot: 24¼d.-24⅜d.

Settlement House:

February 24¼d.-24⅜d.
March 24¼d.-24½d.
April/June 24¼d.-24⅜d.
July/September 24¼d.-24⅜d.
October/December 24¼d.-24⅜d.
January/March (1962) 24¼d.-24⅜d.

No. 1 RSS cif basis ports:

February 24d.-24¼d.
March 24¼d.-24¼d.

Godown:

February 80⅛ Straits cents nominal.

LATEX

Centrifuged 60% latex per gallon in drums, seller, January, February, 14s., cif European ports. Spot, seller, 14s. 6d. Bulk, seller, d.w. 13s. 8d. Creamed, seller, 13s. 9d. nominal, January, February. Normal, seller, January, 11s. 11d.

NEW YORK

The New York rubber market ruled as under on January 16:

DEALERS' PRICES

	US cents per lb., ex-dock	
	Jan. 16	Previous
No. 1 RSS, Jan. ..	28⅜n	29a
Feb. ..	28⅜n	28⅜b–29a
No. 2 RSS, Jan. ..	28⅛n	28⅜a
Feb. ..	28⅛n	28⅛b–28⅜a
No. 3 RSS, Jan. ..	28n	28⅛a
Feb. ..	28n	28⅛b–28⅛a
No. 1 RSS, Spot ..	28⅛n	28⅞n
No. 3 amber blanket crepe, Jan. ..	24⅛n	25⅛n

FUTURES—REX CONTRACT

	Jan. 16	Prev. Close
Jan. ..	28.25n	28.85n
March ..	28.40b–28.50a	29.00b–29.10a
May ..	28.35t	28.85b–29.00a
July ..	28.35b–28.40a	28.85b–29.00a
Sept. ..	28.30t	28.80b–28.95a
Nov. ..	28.20b–28.30a	28.70b–28.85a
Jan. ..	28.10b–28.30a	28.60b–28.80a

Sales: 72. Tone: Easy.

Futures were easier on January 16, on liquidation in fair early dealings. Traders said the decline abroad induced the selling here. Physical rubber was quiet and softer. In late trading futures continued easy. Physical rubber was easy and quiet.

AMSTERDAM

The Amsterdam rubber marked ruled as under on January 16:

	Guilders per kilo	
No. 1 RMA:	Jan. 16	Previous
January	2.44	2.46
February	2.44	2.46
March	2.44	2.46
January/March ..	2.44	2.46
April	2.44	2.46
May	2.44	2.46

Sales: Nil. Tendency: Quiet.

BANGKOK

No. 1 RSS. The price of No. 1 RSS at Bangkok on January 16 was 27.12½ (27.12½) US cents per lb.

SINGAPORE

Upcountry godown liquidation caused the market to ease throughout the morning of January 16. There was very little genuine buying interest on a thin market. Demand for lower sheet was small, but there were few sellers, except on switches. The afternoon was quiet and prices remained stable throughout. Interest in lower sheet was moderate. There was some demand for forwards at slightly wider differentials. Factories showed some interest.

	Malayan cents per lb., fob Malayan ports to open ports	
	Jan. 16	Prev. Close
No. 1 RSS, Feb. ..	83⅜–83⅞	84¼–85⅛
Mar. ..	83⅜–84¼	85⅛–85½
No. 2 RSS, Feb. ..	82¾–83¼	84¼–84⅞
No. 3 RSS, Feb. ..	82 –82¼	83¼–83½
No. 4 RSS, Feb. ..	78¼–79¼	79½–80¼
No. 5 RSS, Feb. ..	69¾–70¾	70½–71¼
No. 1 RSS, Spot ..	83⅜–83½	84¼–85
No. 3 blanket thick remilled crepe, Feb.	68 –69	68½–69
No. 1 fine pale crepe, Feb.	88½–89¼	89 –91
2x thin brown crepe, Feb.	67½–68½	68½–69½

Tone: Quiet.

The Industries Syndicate quote latex, native produce, 60% centrifugal, packed in rectangular drums fob at 165.20d. per gallon.

DJAKARTA

During the morning of January 16, 15 tons of sheet No. 1 for ready delivery were transacted at 31 to 31.50 rupiahs per kilo, but at noon sellers were not willing to meet buyers' ideas and no transactions were concluded. The market closed quiet. No. 1 sheet was half a rupiah below Saturdays' closing level.

	Rupiahs per kilo	
	Jan. 16	Previous
Spot No. 1 Priok ..	30.50b	31.00b
Spot No. 2 Priok ..	29.50b	30.00b
Spot No. 3 Priok ..	28.50b	29.00b
No. 1 fine pale crepe, Spot	30.00b	30.50b

Tone: Quiet.

CEYLON

No. 1 RSS. The price of No. 1 RSS at Colombo on January 16 was 91 (94) Ceylon cents per lb.

STOCK MARKET

Continued from page 111

pates that results for this year will show further improvement. Later there is to be a 'rights' issue to raise the balance of the £2m. that is required.

ENGLISH ELECTRIC has formed a reinforced plastics division which will be centred at a new works at Freckleton, Warton. Although the bulk of the products made will be used within English organization, the factory has been prepared for competitive production. Pressure mouldings up to a size of 15ft. by 12ft. can be made at these works and filament wound tubes and pressure vessels. Preforming and press moulding will be carried out by a separate manufacturing unit. The division will concentrate on 12 to 15 known processes in reinforced plastics.

HACKBRIDGE HOLDINGS produced something of a shock with its news that the interim dividend was to be cut from the previous equivalent of 3¾% to 2½%. Reason apparently for the move was because of the price war that bedevils the cable-making industry. The order book is substantial and it is hoped that the second half of the year will reflect a greater period of stability.

Odd Spot: TELCON PLASTICS has been formed as a private company to construct and maintain cables, telegraphs, telephones and the like. The board is headed by Mr Derek Norman-Thomas.

I.C.I. Rights Issue

Imperial Chemical Industries' expected capital operation takes the form of a rights issue to raise between £34m. and £35m.

The issue will be made to ordinary stockholders registered on January 20 who will be offered one new £1 ordinary share at 55s. for each £20 of ordinary stock held. The number of shares to be issued will be between 12,584,450 and 12,910,000.

The directors state that they expect to pay a final dividend of 1s. 6d. per share, making a total of 2s. 9d. for 1960. They believe that it will be possible to maintain the 1960 rate of dividend on the ordinary share capital as increased by the present issue.

The I.C.I. chairman, S. P. Chambers, said that the new money had not been earmarked for any particular project. The rate of capital expenditure was now rising and the company was engaged on a number of 'fairly large developments.' These included the site at Severnside, the Terylene plant in Northern Ireland and expansion at Wilton and elsewhere. Developments underway were expected to cost £51m. Mr Chambers had no doubt that further expansion schemes would take place this year.

K. C. Potts, who has been working for the Factice Research Association, has now taken up an appointment with Lonabarc Ltd. as its Northern sales and technical representative.

Industry INTELLIGENCE

Technical Data

Latex Adhesives

Polysar technical report No. 9:12B, issued recently by Polymer (UK) Ltd., Walbrook House, Walbrook, London, E.C.4, gives details of the compounding and testing of latex adhesives based on Polysar Latex 722.

This material is recommended for water-based adhesives, particularly those used for porous surfaces such as paper, textiles and leather. In addition to the safety and cost advantages of a water based system, Polysar latex 722 offers high solids, good colour, absence of odour and good stability. The high molecular weight butadiene-styrene copolymer in the latex produces adhesive films which are tough, flexible and waterproof.

The report gives recipes for adhesives suitable for brush or roller coating which have excellent shelf ageing stability and low filler loadings. Compounds with high filler loadings are also given which are more economical but require careful control of viscosity by balancing thickener, stabilizer and solids content. Excellent adhesion stability is obtained by omitting sulphur until just before application of the adhesive. Cures of from 5 to 10 minutes at 250°C. are recommended.

Butyl 600 Copolymer

Polysar Butyl 600 is a copolymer of isobutylene and isoprene with a much higher degree of unsaturation than has been previously available in butyl rubbers. The advantages conferred by this include faster cures, higher moduli, lower compression set and better low and high temperature properties. These improvements are accompanied by a very slight sacrifice of some of the other properties inherent in Polysar butyl rubbers. Ozone resistance is not so good and some light-coloured vulcanizates may show a greater tendency to craze on prolonged exposure to sunlight. Suggested applications, formulations and property data are given in Polysar Technical Report No. 9:12A available in the UK from Polymer (UK) Ltd., Walbrook House, Walbrook, London, E.C.4.

Machines, Materials and Equipment

Dry Air Supply

Recently introduced into this country from the US the Budget Dryer B6A is being manufactured by GWB Furnaces Ltd., Dudley, Worcestershire.

This new dryer is for applications requiring very dry air in small quantities of up to 20 cu. ft./min. It is modestly priced, will dry other gases in addition to air, costs less to operate than an electric iron and is easily moved and installed, weighing only 70lb.

Once linked to the air supply and connected to any 230 volt AC supply, the dryer automatically continues its cycle of adsorption and reactivation. If the electrical supply should fail, the air supply will not be interrupted, and instruments or other air-operated apparatus will continue to function.

The unit is not affected by variations in air pressure, and automatic operation is independent of operating pressures — from as low as 5lb. to as high as 150lb./sq. in.

This new dryer is designed for very little maintenance. The valve mechanism moves only once every three hours, when the unit automatically shifts adsorbers to return the previously reactivated unit to the drying circuit, reducing wear to a minimum.

Vulcabond TX

Vulcabond TX has been used successfully for the bonding of textiles — namely cotton, rayon, nylon and Terylene — to natural and the principal synthetic rubbers. It can be used by either of two techniques, dip impregnation or spreading. These are described in Rubber Chemicals Literature No. 31 issued by the Dyestuffs Division of I.C.I. Ltd. Details are given of the general procedure followed in both methods and the results of load to peel tests carried out on a selection of textile fabrics and rubbers.

Vulcabond TX is a solution of mixed polyisocyanates in xylene and the usual precautions in handling these materials must be observed.

Publications

Erinoid Moulders' Guide

'Men and machines are not infallible. And nowhere is this more true than with polystyrene moulding.' These are the opening words in a publication just released by Erinoid Ltd.

This has been written with the moulding shop foreman in mind, is aimed at maintaining smooth uninterrupted production and is a handy trouble shooters' guide. The more common difficulties likely to be encountered in the moulding shop are listed, together with their possible causes and remedies. Altogether 17 major faults are given and for each of these up to 10 possible causes are listed with a rather larger number of remedies. This is a formidable list and the booklet also gives a complete list of Erinoid polystyrene grades.

Copies of the booklet may be obtained from Erinoid Ltd., West Halkin House, West Halkin Street, Belgrave Square, S.W.1.

General Chemicals Catalogue from A. and W.

A new general chemicals catalogue has been issued by Albright and Wilson (Mfg.) Ltd., the largest manufacturing company of the Albright and Wilson group. An insert section shows the way in which these chemicals are used throughout British industry in the production of a multitude of industrial and consumer products in every day use. Close on 350 products are listed.

The General Chemicals Department of Albright and Wilson (Mfg.) Ltd. handles all grades of chemicals, from technical to those of high purity for specialized industries. The company is the main producer of phosphorus and its derivatives in the UK. Its interests embrace the production and sale of phosphoric acid, organic phosphorus compounds, inorganic phosphates and the development of a fast growing range of industrial finishing processes. Copies of the catalogue may be obtained on request from the General Chemicals Department of Albright and Wilson (Mfg.) Ltd., 1 Knightsbridge Green, London, S.W.1.

Five Philblacks

A very neat, colourful, easy reference sheet describing the properties of polymers containing different carbon blacks has recently been issued on behalf of Philblack Ltd. by their sole selling agents R. W. Greef and Co. Ltd.

Called 5 British Philblack Carbon Blacks in 5 Polymers this presents in tabular form the physical properties of vulcanizates of natural rubber, SBR 1500, butyl, neoprene and nitrile containing Philblacks G, A, O, I and E and enables a comparison between polymers or blacks to be made at a glance.

The great merit of this little leaflet is that while the information given seems to be very comprehensive there is absolutely no unnecessary detail.

Anchor Chemicals

The number of products available from Anchor Chemical Co. Ltd., Manchester 11, is now in the region of 300 and most of these, together with a description of their main applications and properties are listed in the latest of the company's publications.

Since its foundation in 1892 the range of products from Anchor has increased extensively and the paint, printing ink and paper industries are now served as well as the rubber industry.

In recent years the company's interests have been still further broadened to include the plastics, resins and lubricants industries, and among the newer products are a range of synthetic rubbers and high impact Acrylonitrile-Butadiene Styrene resins.

Polymer Chemistry

A course of nine lectures is to be given during February and March at the Welsh College of Advanced Technology in Cardiff on some aspects of the physical chemistry of polymers. This follows a successful course held during the last term on the chemistry of some plastic materials.

The nine lectures will be given in groups of three, each group occupying an afternoon from 2.30 to 7.30 p.m., and the three sessions are to be on February 2, February 16 and March 2. The fee for the course is £2.

The subjects and lecturers are as follows:—

Mechanisms of Polymerization, by Professor A. G. Evans, University College, Cardiff; Crystallization of Polymers, by C. W. Bunn, I.C.I. Ltd.; Glass Transition Temperatures, by A. H. Willburn, I.C.I.; Fundamental Properties of Long-chain Molecules, by L. R. G. Treloar, British Rayon Research Association; Polymer Solutions, by A. J. Hyde, Royal College of Science and Technology, Glasgow; Molecular Weight Determinations, by M. F. Vaughan, National Chemical Laboratory, DSIR; Rubber-like Elasticity, by L. Mullins, NRPRA; The Kinetics of Vulcanization, by B. Ellis, Welsh College of Advanced Technology; The Mechanical Properties of Polymers, by M. Gordon, Imperial College of Science and Technology, University of London.

Future Events

Institution of the Rubber Industry

Manchester Section.—Jan. 23 at the Engineers' Club, Albert Square, Manchester, at 6.45 p.m. Joint meeting with the Plastics Institute (North Western Section).

Plastics Institute

North-Western Section.—Jan. 27, at the Grand Hotel, Manchester. Annual dinner and dance.

Scottish Section.—Jan. 25 at the Kenilworth Hotel, Glasgow, at 7.30 p.m. 'The Coating of Metal with PVC,' by B. Clifton, M.A. (The Geigy Co. Ltd.)

Changes of Name

Dunlop Clothing and Weatherproofs Ltd. (413,945), 1 Albany Street, N.W.1.—Name changed to Chas. Macintosh (Clothing and Weatherproofs) Ltd. on May 24 1960.

Fibromold Ltd. (543,877), 6 Raymond Buildings, W.C.1.—Name changed to F. M. Plastics Ltd. on May 26 1960.

Folkard-Ferry Ltd. (508,817), Capital House, The Broadway, Mill Hill, N.W.7.—Name changed to Folkard (Plastics) Ltd. on May 20, 1960.

Plastics (London) Ltd. (423,377), 35 New Broad Street, E.C.2.—Name changed to Self-Adhesive Sign Co. Ltd. on May 19 1960.

Injection Tools and Mouldings Ltd. (507,396), Factory 'B,' Roebuck Road, Chessington, Surrey.—Name changed to I.T. and M. (Plastics) Ltd. on June 3 1960.

Tyres Portsmouth (1937) Ltd. (326,143), 129 Victoria Road North, Portsmouth, Hants.—Name changed to Ophir Service Station Ltd. on May 6 1960.

NEW COMPANIES

Staperm Ltd. (674,797).—November 11. Capital: £10,000 in £100 shares. To carry on the business of manufacturers of and dealers in chemical products, synthetic resins, resin emulsions, etc. Three directors shall be appointed by A. E. Staley Manufacturing Co. (registered in Delaware, USA) and two by the Permutit Co. Ltd. The first directors are not named. Solicitors: Bracewell and Leaver, 7/8 Norfolk Street, W.C.2, and MacKenzie and Hightower, Chicago, 2, USA.

Woodville Rubber Co. (Fine Products) Ltd. (674,096). — November 2. Capital: £10,000 in £1 shares. The first directors are: Charles E. Brewster, The Graig, Ashfield, Ross on Wye; William F. Hodson, 7 Balmoral Road, Winshill, Burton-on-Trent; Ernest W. C. Nimz and Albert J. Boaden. Regd. office: Burton Road, Woodville, near Burton-on-Trent.

Neolite Ltd. (674,160). — November 3. Capital: £200 in £1 shares. To carry on the business of manufacturers of and dealers in plastics, etc. The directors are: Victor S. Knight, 52/4 Ceres Road, S.E.18 (neon sign contractor); Harold V. Knight, 118 Mungo Park Road, Rainham, Essex; Edward S. Knight, address not stated. Solicitor: R. J. H. Neil, Northwood.

Christopher Wilkinson Ltd. (674,271).—November 4. Capital: £5,000 in £1 shares. To carry on the business of dealers in and agents for tyres, brake linings, etc. The first directors are: Christopher S. Wilkinson and Mrs. Phyllis M. H. Wilkinson, both of 14 Grove Road, Boreham Wood, Herts. Regd office: Station Yard, London Road, St. Albans.

Tyre Services (Northallerton) Ltd. (674,488).—November 8. Capital: £100 in £1 shares. To carry on the business of manufacturing, retreading, remoulding and dealing in rubber tyres, etc. The first directors are: John Blacklock and Winifred Blacklock, both of 58 Scotby Road, Scotby, Carlisle. Regd. office: Durranhill Industrial Estate, Carlisle.

Latafoam Services Ltd. (674,349).—November 7. Capital: £70,000 in £1 shares. To acquire the undertaking or not less than 90% of the issued share capital of Latafoam (Holdings) Ltd., and to carry on the business of manufacturers of foam and cellular rubber, etc. The first directors are: Leonard I. Simpson, Leyswood House, Groombridge, Sussex; James W. A. Calver, Old Postmans Cottage, Alciston, Sussex; Herbert Thorpe and Cyril J. Gunton. Regd. office: New Mill, Park Road, Dukinfield, Cheshire.

Midland Moulding Co. Ltd. (676,892).—December 5. Capital: £2,000 in £1 shares. To carry on the business of manufacturers, moulders, and dealers in plastic and rubber fabrications, etc. The first directors are: David E. Hopkins and Mary Hopkins, both of 57 Knapp Way, Malvern. Regd. office: Spring Lane, Malvern Link, Worcs.

Haffenden-Richborough Ltd. (675,198).—November 16. Capital: £100 in 4s. shares. To carry on the business of manufacturers of and dealers in rubber and plastic goods; to co-ordinate the group of companies comprising W. W. Haffenden Ltd., Richborough Rubber Works Ltd., Sandwich Engineering Co. Ltd., and the subsidiaries thereof, etc. The first directors are not named. Regd. office: Ridgeford House, 9 Clarges Street, W.1.

TRADE MARKS

Objections to the registration of any of the undermentioned applications may be lodged with the Comptroller-General of Patents, Designs and Trade Marks at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.2, within one month of the date mentioned. The objections must be stated on Trade Marks Form No. 7, cost £2, obtainable through any money order office. The extracts—from 'The Trade Marks Journal'—given below are reproduced by permission of the Controller of H.M. Stationery Office.

Cow

(808,856) Printers' blankets made of rubber or of artificial rubber. P. B. Cow and Company Ltd., 470 Streatham High Road, London, S.W.16. (Class 16; January 4 1961.)

(B796,561) Plastics in sheet form included in Class 17. Dispro Ltd., 36-38 Peckham Road, London, S.E.5. (Class 17; January 4 1961.)

CRAYLON (804,847) Sheets, strips, bars, blocks, wire, strands, braids, rods, tubes, tapes and shaped sections, all of common metal coated with plastics and included in Class 6. Greenwich Plastics Ltd., Willington Quay, Wallsend-on-Tyne, Northumberland. (Class 6; January 4 1961.)

(B802,842) Paper, paper articles and cardboard articles, all included in Class 16; and cardboard, printed matter, periodical publications, books, stationery and office requisites (other than furniture). Grange Products (Sydenham) Ltd., The Courts, Silverdale, Sydenham, London, S.E.26. (Class 16; January 4 1961.)

COPAR (812,215) Material and parts for electrical insulation; and electrical insulators. A. Reyrolle and Comp., Ltd., Hebburn, County Durham. (Class 17; January 4 1961.)

CIAGO (809,431) Synthetic rubber and articles included in Class 17 made wholly or partly of synthetic rubber. N.V. Chemische Industrie Aku-Goodrich (a Joint Stock Company organised under the laws of Holland), Velperweg No. 76, Arnhem, Holland. Address for service is c/o Marks and Clerk, 57 and 58 Lincoln's Inn Fields, London, W.C.2. (Class 17; January 4 1961.)

Latest Wills

Mr Malcolm Herbert McKellar, of Victoria Hotel, Belgrave Road, Torquay, retired rubber planter, who died on September 19, left £30,320 gross, £30,155 net value.

Lieut.-Commander George Cecil Hans Hamilton, C.B.E., M.A., LL.B., of Somersby House, Spilsby, Lincs., a director of Hairlok Co. Ltd., and Moulded Hair Co. Ltd., who died on October 1, left £52,375 gross, £43,829 net value.

The Dolphin—a new public house at Hamilton, Lanarkshire — is extensively panelled with laminated plastics. The saloon bar counter shown here is faced with Warerite Exotica, and the back wall with a contrasting pattern

R·J·I·P· CLASSIFIED ADVERTISEMENTS

APPOINTMENTS VACANT

6d. a word, Minimum 10/- Box 2/-

AERIALITE LIMITED,
CASTLE WORKS,
STALYBRIDGE,

have a vacancy on their Process Control staff for a young man of about 21 years of age. This vacancy provides a unique opportunity to gain experience in all aspects of the technical and manufacturing side of plastics processing and cable-making. The person appointed will initially be attached to the Works Laboratory followed by period as assistant to the various production superintendents. After training he will join the Process Control staff, where his duties will, in the main, be concerned with the diagnosis and elimination of manufacturing faults on the shop floor. Experience in the cable industry is desirable though not essential, and preference will be given to candidates pursuing part-time courses in engineering, chemistry or rubber and plastics technology.—Apply by letter giving details of age, education and experience to the Personnel Officer at the above address. (762)

FOREMAN required to take charge of a rapidly expanding mechanical department of a well-known rubber company in Surrey. Permanent appointment for the right man. Profit sharing and contributory pension schemes in operation.—Applications, in confidence, giving full details of age, experience and present salary to Box 748. (748)

FOREMAN required to take charge of a rapidly expanding extrusion department of a well-known rubber company in Surrey. Permanent appointment for the right man. Profit sharing and contributory pension schemes in operation.—Applications, in confidence, giving full details of age, experience and present salary to Box 749. (749)

SHELL **Shell Chemicals**

A CAREER IN PLASTICS

As a result of our rapid expansion in the field of thermoplastics, a senior appointment is to be made in our Manchester Sales Office for a

TECHNICAL MANAGER

Applications are invited from candidates with several years experience in plastics technology and engineering, together with an interest or background of technical marketing. Experience in technical service work would be of particular advantage.

Candidates should have a Scientific or Engineering Degree or hold the Associateship of the Plastics Institute. Salary will be appropriate to the status of the position. Generous pension scheme and many other benefits. Age limit 35.

Write with full details (quoting Reference P127) to :

SHELL CHEMICAL COMPANY LIMITED
Personnel Department
29/30 Old Burlington Street, London, W.1
(757)

APPOINTMENTS VACANT
(continued)

PLASTICS technologist, preferably married, aged 30-45, is required for a senior position, and to take full responsibility for the operation of a whole plant in Uruguay. He should be thoroughly familiar with all phases of the extrusion field and plastisol compounding, and have a sound chemical background. A thorough knowledge of English will be essential, also a workable knowledge of Spanish. This is an excellent opportunity for a man with aggressiveness and initiative to fill an interesting and challenging position.—Write Box 772. (772)

PROGRESSIVE public company has a vacancy for commercial manager. Knowledge of injection and compression plastics mouldings for industry is essential. The successful applicant will be directly responsible to the divisional director, and should be capable of assuming increasing responsibilities. The position is permanent, pensionable and progressive.—Write details of age, experience and present salary to the Managing Director, Hellermann Limited, Crawley, Sussex. (761)

RUBBER technology. A young keen rubber technologist is required for a research and development centre in the Slough area. Minimum qualification required is the L.I.R.I., and applicants must be prepared to work on the shop floor to establish production methods on new products. Contributory pension scheme. Commencing salary £700 per annum or according to qualifications.—Apply giving full details to Box 760. (760)

RUBBER and plastic cable manufacturers in North-West require senior laboratory assistant, at least L.I.R.I. standard or equivalent. Previous cable experience not essential. Salary in line with qualifications and experience, superannuation scheme.—Apply Box 743. (743)

RUBBER mill-room manager required by leading company in the Midlands, specialising in natural and synthetic rubber components. Must have general mill-room experience, particularly extruding and calendering, and be capable of taking control. This position might attract mill-room foreman desiring promotion. Good salary with pension and L.A. scheme. —Please apply, giving full details of experience to Box 775. (775)

THE Phoenix Rubber Co. Ltd., Slough, Buckinghamshire, wish to appoint a technologist in their control and development laboratory. Applicants must have experience in PVC compounding and/or rubber compounding. The position carries a good salary for an experienced and energetic young man. (765)

CHEMISTS

Have you a good-class Honours Degree or a Ph.D? Do you prefer to apply your knowledge in product development work rather than fundamental research? Are you between 22 and 28? Whether you have just completed or are about to complete a University course, or have had some industrial experience, we shall be pleased to receive your application. We make PVC film for a wide range of uses in both industrial and domestic markets. We have expanded considerably in recent years and the part to be played by development work in our plans for the future is most important. Good salaries are paid to first-class men who have the ability to think originally and to translate their ideas into reality.—If you wish to discuss the position in detail, apply to the Personnel Manager, Box 769. (769)

APPOINTMENTS VACANT

ESSO RESEARCH LTD.

has vacancies for experienced

RUBBER TECHNOLOGISTS

to carry out technical service and development research work on elastomers. It is anticipated that suitable candidates will have a university degree or equivalent, plus several years of practical experience in rubber processing and compounding.

Salary will be commensurate with the high degree of skill and experience required for these positions.

Apply in writing to:—

Laboratories Manager (Ref. R.T.),
Esso Research Ltd.,
Abingdon, Berks.

(768)

APPOINTMENTS WANTED

6d. a word, Minimum 10/- Box 2/-

RUBBER technician. Managing Director wishes to recommend gentleman who has had very wide experience both as works manager and technical sales representative. Available due to sale and closing down of business.—Apply to Industrial and Financial Secretariat, Ltd., 53 Eastcheap, London, E.C.3. (771)

AGENCIES and REPRESENTATIVES

6d. a word, Minimum 12/6 Box 2/-

CHEMICAL and pigment distributors require sales representative to call on rubber, plastic, paint and allied trades in Birmingham and other provincial areas. Would suit junior chemist requiring progressive opportunity.—Write with full details to Box A.C. 24824, Samson Clarks, 15/17 Marylebone Road, N.W.1. (774)

BUSINESS OPPORTUNITIES

6d. a word, Minimum 12/6. Box 2/-.

OLD-ESTABLISHED company widely known in the leather industry and possessing extensive home and export sales organisation would collaborate with manufacturers of plastics and leather alternates whose products could find applications in the shoe and other leather consuming trades.—Box 773. (773)

CAPACITY AVAILABLE

6d. a word, Minimum 12/6 Box 2/-

HAMPSHIRE PLASTICS AND ENGINEERING CO. LTD.
1 RICHMOND PLACE, PORTSEA, PORTSMOUTH, HANTS.
Phone Portsmouth 20032.

Capacity available for injection moulding up to 2½ozs. Design and manufacture of moulds on the premises. Deliveries depending on nature of mould but in general between 4 to 6 weeks. (758)

This column can be YOUR best BUYER or SELLER

RUBBER & PLASTICS

MACHINERY

Why not see for YOURSELF

MACHINERY FOR SALE

6d. a word, Minimum 12/6 Box 2/-

MANUFACTURERS of roughing machines for rubber sheeting, sponge rubber, splitting machines, leather cloth plant, embossing plates and rollers, spreading machines and presses.—G. L. Murphy Ltd., Imperial Works, Menston, Nr. Leeds. (238R)

PLASTIC injection moulding machines. Peco 9oz. automatic. Windsor 6oz. model SH6.—Fred Watkins (Engineering) Ltd., Coleford, Gloucestershire. Phone Coleford 2271/5. (759)

STEAM-HEATED rubber vulcanizing oven, 4ft. dia. x 6ft. long, in first-class condition.—Box 358. (358)

WEIR hydraulic pump. One turbine driven 1¼in. diameter by 2½in. stroke horizontal seven-throw pump. Output 50 gallons per minute at 2,240 p.s.i. Turbine working pressure 60/100 p.s.i., saturated. Exhaust pressure 5 p.s.i. Ancillary equipment also available, comprising the following: 1 tubular condenser, Bellis and Morcom pumping unit. Can be seen on site in full working conditions.—Hall and Hall Ltd., Oldfield Works, Hampton, Middlesex. (770)

50IN. x 20in. single geared mill. 8½in. extruder with 120/40 h.p. variable speed drive. 8in. Camelback extruder. 4½in. Camelback extruder. 48in. x 18in. calender with variable speed drive.—Reed Brothers (Engineering) Limited, Replant works, Woolwich Industrial Estate, London, S.E.18. (767)

600

MODERN BOILER PLANT AVAILABLE

EX SITE HEREFORD

FIVE - EDWIN DANKS Horizontal double-pass economic boilers, 9'9" dia. x 15'6" over tubeplates x 19'6" overall, evaporation 12,000 lb/hr. 120 p.s.i. with fittings, mechanical stokers, I.D. Fans, also Feed Pumps, tanks, instrument panel, coal handling plant.

GEORGE COHEN
Sons & Co. Ltd.

WOOD LANE, LONDON, W.12
(Shepherds Bush 2070)

STANNINGLEY, NR. LEEDS
(Pudsey 2241) (753)

MACHINERY WANTED

6d. a word, Minimum 12/6 Box 2/-

MELLOR Equipment Ltd., Springfield Lane, Salford, 3, buy used machinery of Francis Shaw and Joseph Robinson manufacture.—Telephone Manchester, Blackfriars 1866. (632)

PVC *Sheeting scrap all types colour sorted and mixed regular quantities available*

MICHAEL S. STEVENS LIMITED
Station Works, 75c Upper Richmond Road, Putney, S.W.15
VANDYKE 6925 (739)

ARTICLES WANTED

6d. a word, Minimum 12/6 Box 2/-

THERMOPLASTIC scrap. We always buy large and small quantities and pay prompt cash.—Send offers to J. W. Nash and Co., Ltd., 27 Beethoven Street, London, W.10. Ladbroke 4655. (531)

TRADE SERVICES

6d. a word, Minimum 12/6 Box 2/-

FIBRE Glass. Reduced to particles of various sizes, suitable for moulding or other applications.—Inquiries and suggestions for application to Peter J. Dewsnap, A.M.I.Prod.E., Commercial and Industrial Consulting Services (Props. P. J. Dewsnap, Ltd.), 120 City Road, London, E.C.1 (near Old Street Station). CLErkenwell 6000. (766)

MOULDS for blowing bottles, containers, etc. Specialists in toy work, tools are made from alloys and steel. They are low in cost with quick delivery. Also model making and prototypes.—G. Ricordini, 13 Elm Close, Twickenham, Middlesex. Feltham 3893. (763)

SCISSORS, up to 7in. ground and set by London cutlers established over 100 years: 48 hours postal service, 1/6 per pair.—J. A. Fowler, 18/22 Bell Street, Edgware Road, London, N.W.1. PAD 1491. (74R)

APPRENTICESHIPS

6d. a word, Minimum 12/6 Box 2/-

APPRENTICESHIPS offered commencing September, 1961, to young men with G.C.E. in a number of subjects and with the minimum of chemistry and physics or mathematics at Advanced Level. Training will be over a period of 5 years working for the new Diploma in chemical technology (plastics) on a sandwich course basis. Payment at student rates is made both whilst the student is at college and whilst he is receiving industrial training. Please write to:

THE EDUCATION AND TRAINING OFFICER,
THE GENERAL ELECTRIC COMPANY, LIMITED,
WITTON,
BIRMINGHAM, 6.

(764)

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(Stockalite, Spaswhite, Supreme, Devolite, etc.)

SPECIALLY PRODUCED FOR THE RUBBER TRADE

Have you yet tried ***Takolin 22****? If not, send for sample*

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Also at London, Manchester, Stoke, Edinburgh, Leominster and Willington-Quay-on-Tyne

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RUBBER LATEX
All Grades

For samples and prices please write to:

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Idol Lane, London, E.C.3
Telephone: Mansion House 1005

TO FIT THE SHAPE OF THINGS TO COME!!

POLYESTER . . . . . **all purpose foam**
POLYETHER . . . . . **cushioning foam**
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We can supply all and any of the above foams cut to size or in sheets. Our Representatives are at your disposal should you require further information regarding the possibilities of these versatile, inexpensive materials

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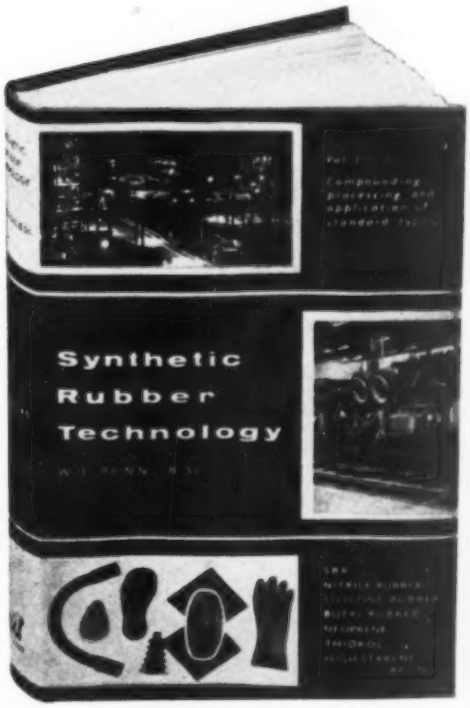

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